

FIG - 1

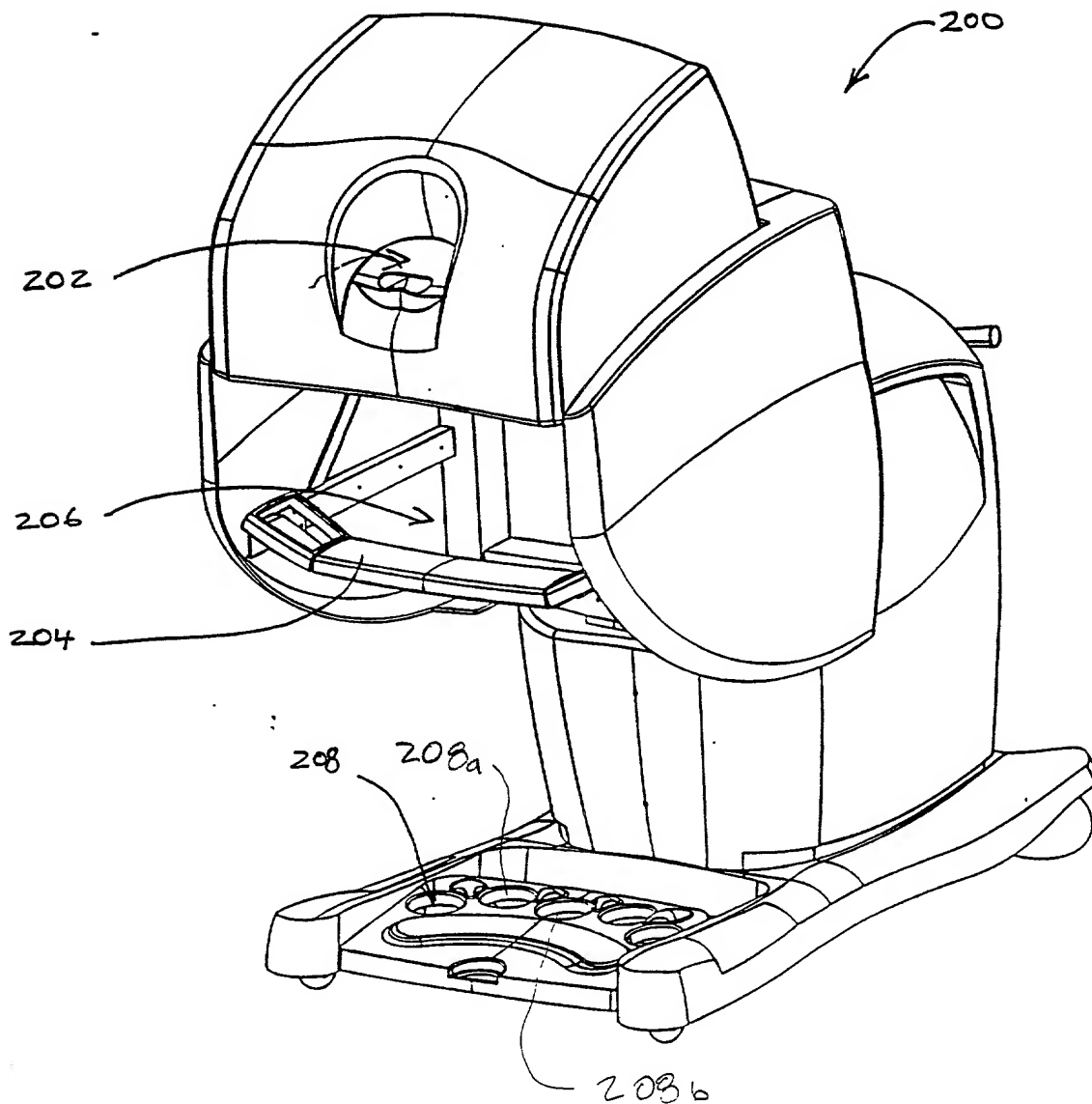
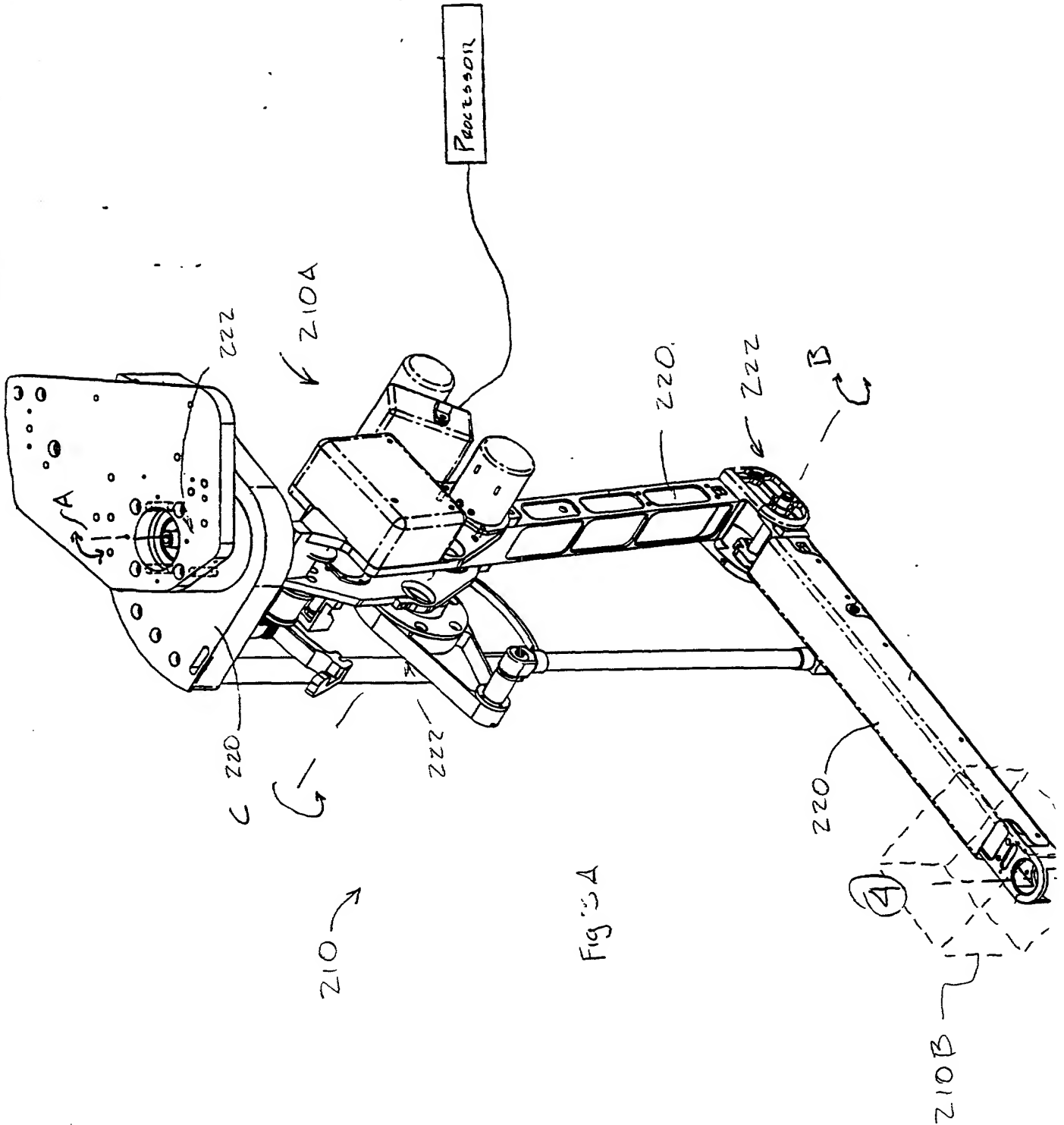
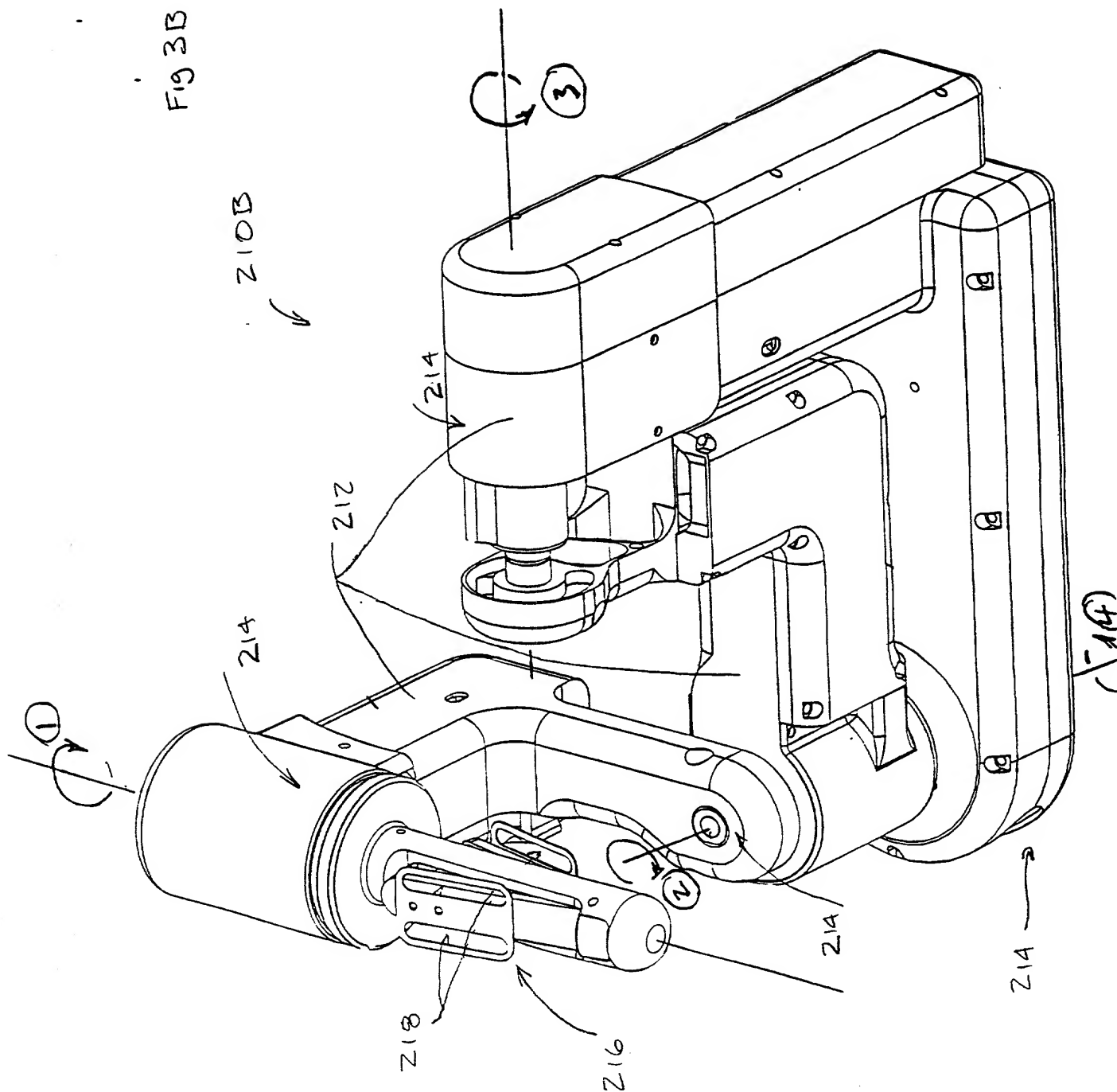


FIG 2

FIG. 3A is a perspective view of a robotic surgical system 210. The system 210 includes a base 210A, a manipulator arm 210B, and a surgical tool 210C. The base 210A is connected to the manipulator arm 210B, which is connected to the surgical tool 210C. The system 210 is controlled by a processor 220. The system 210 is used for minimally invasive telesurgery.



210B



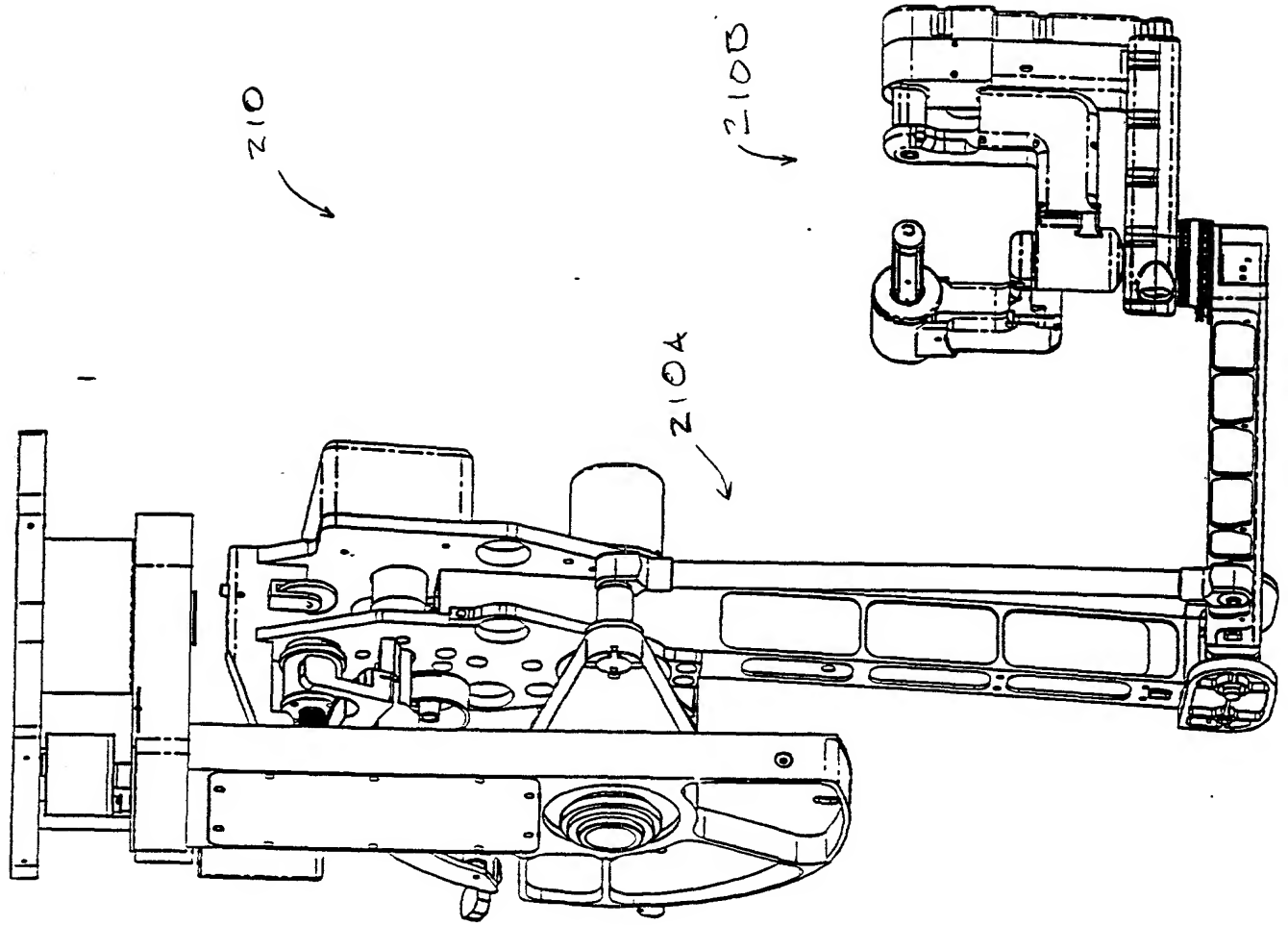
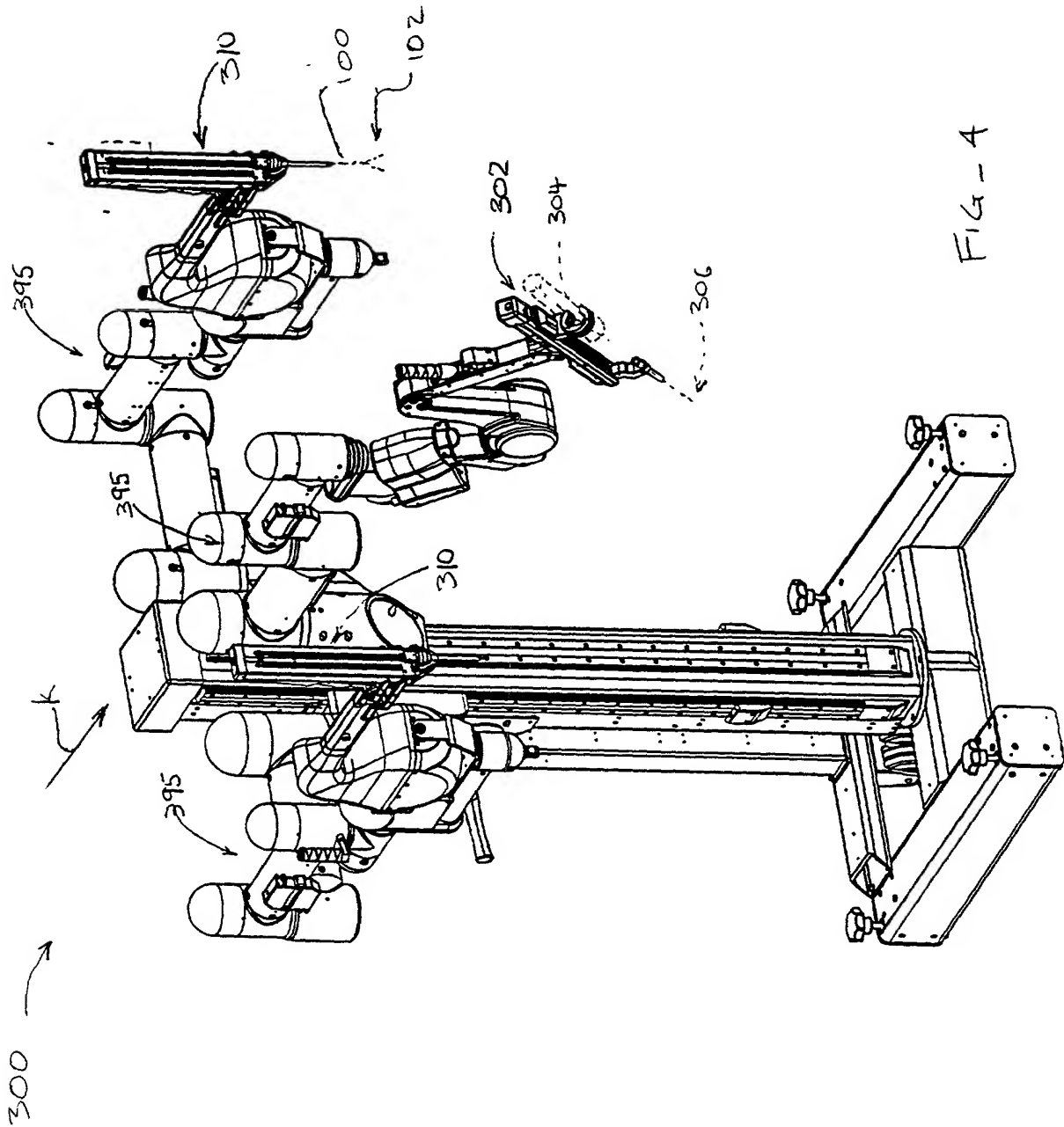
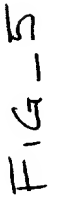


FIG-3C





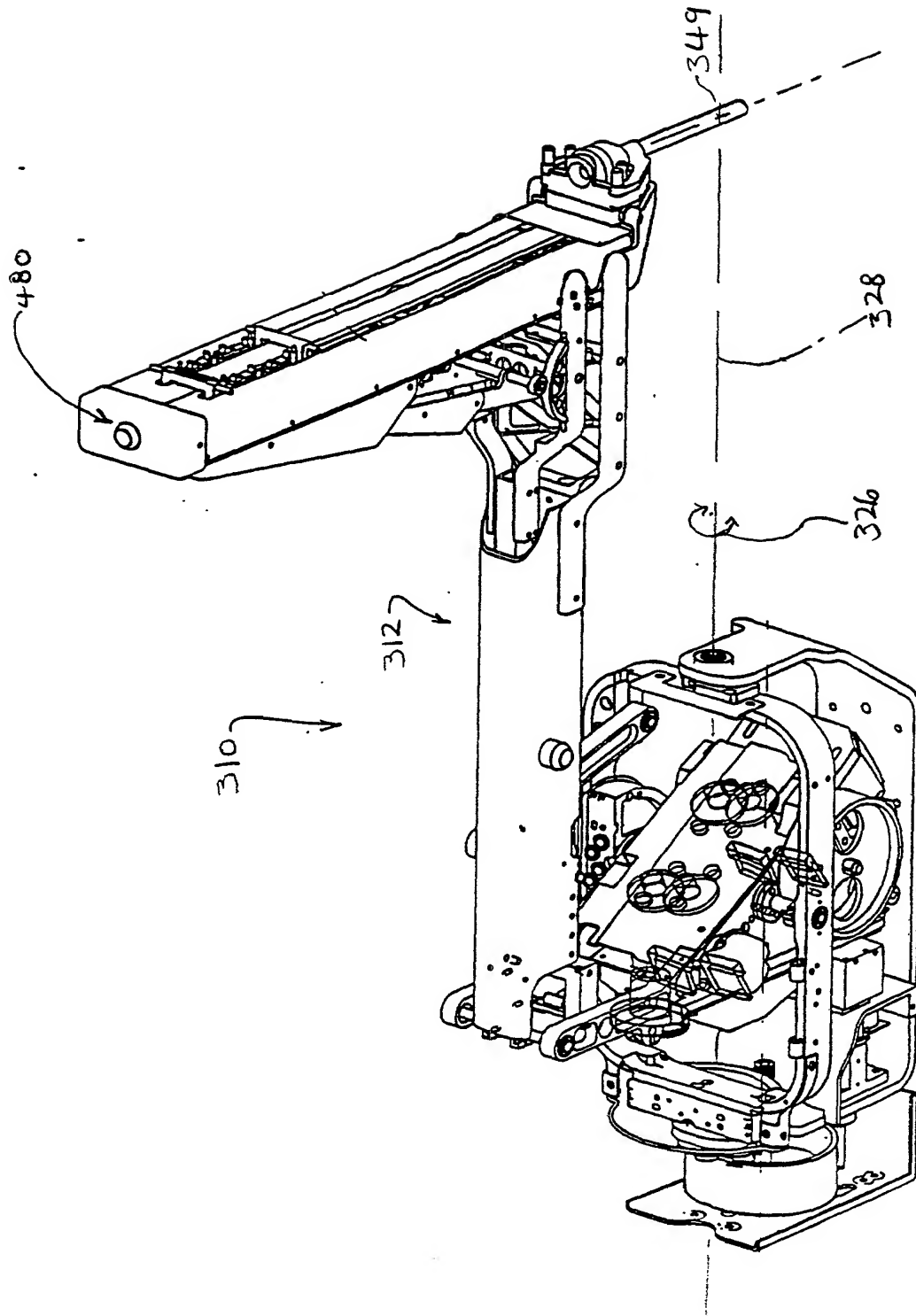
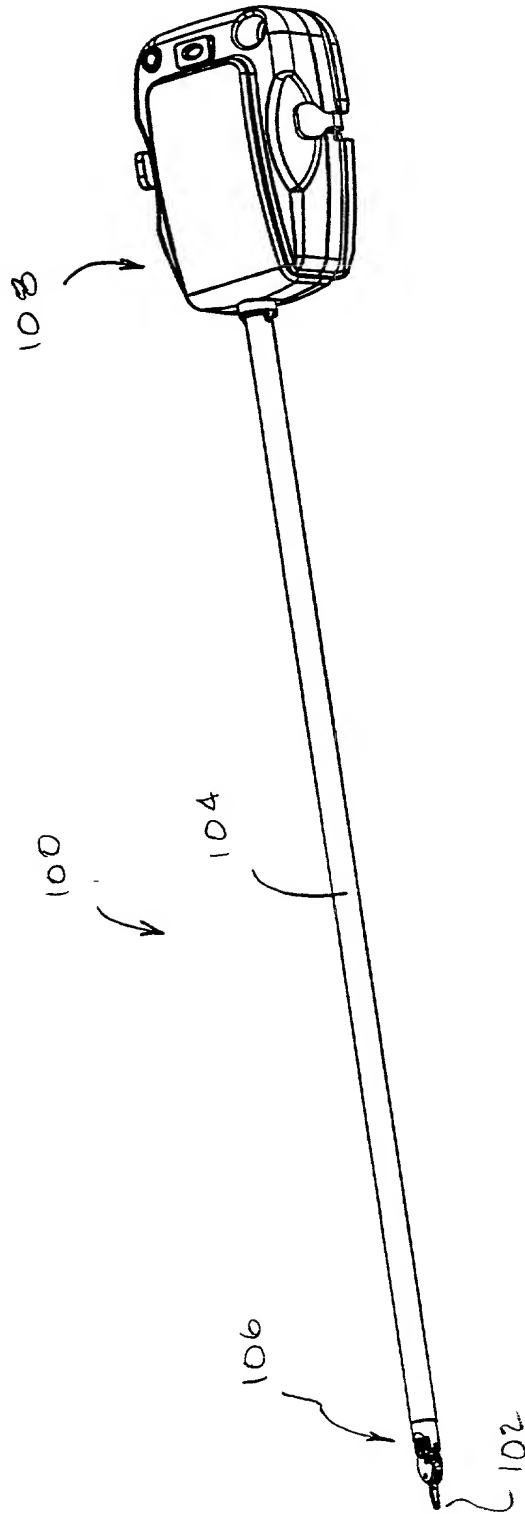
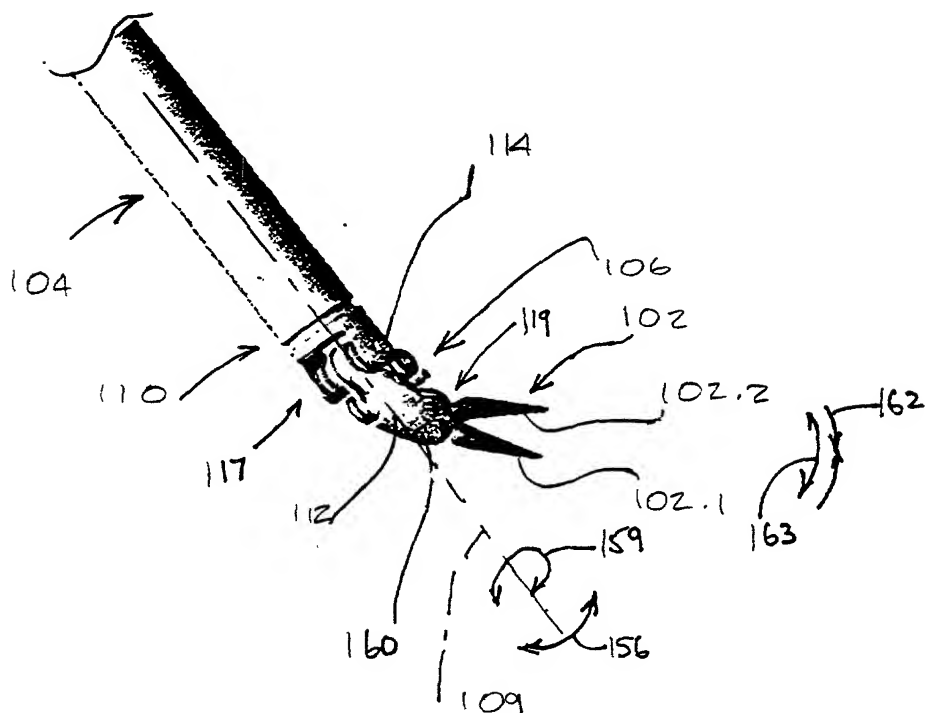
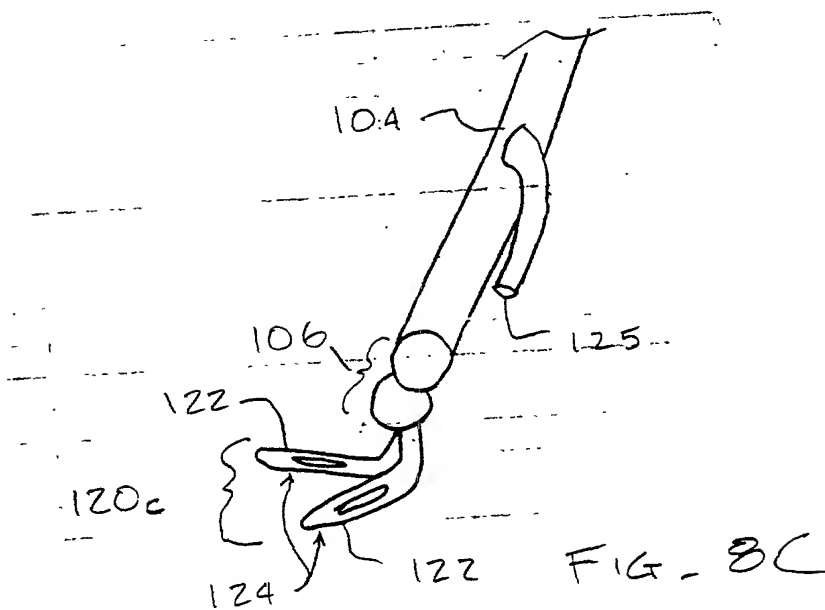
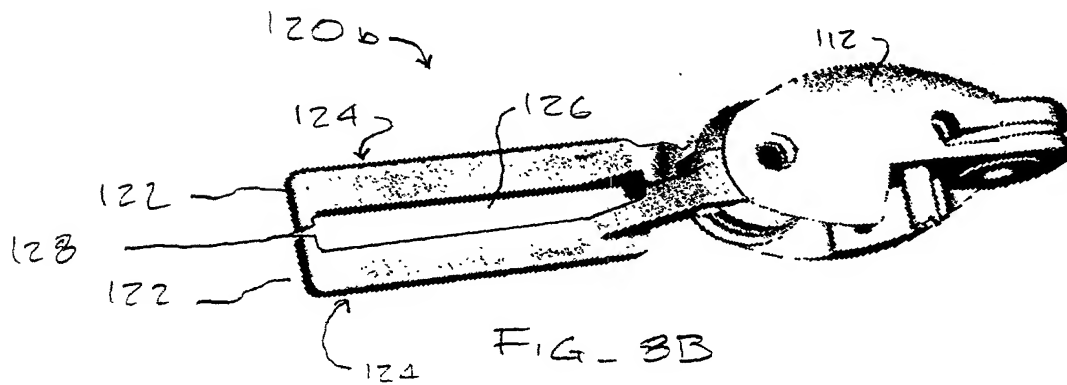
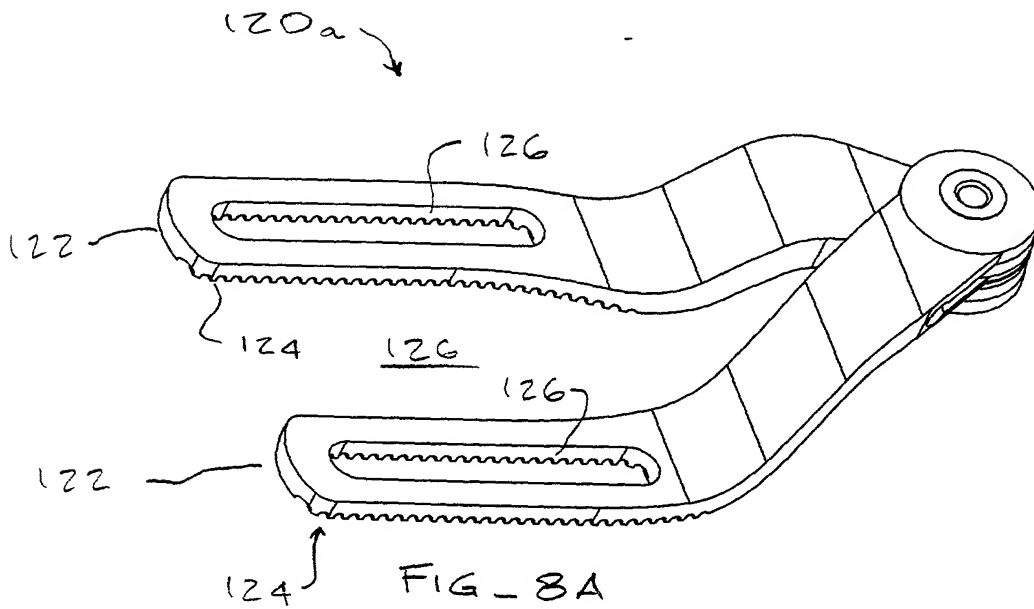


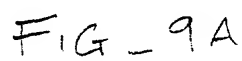
FIG-5A











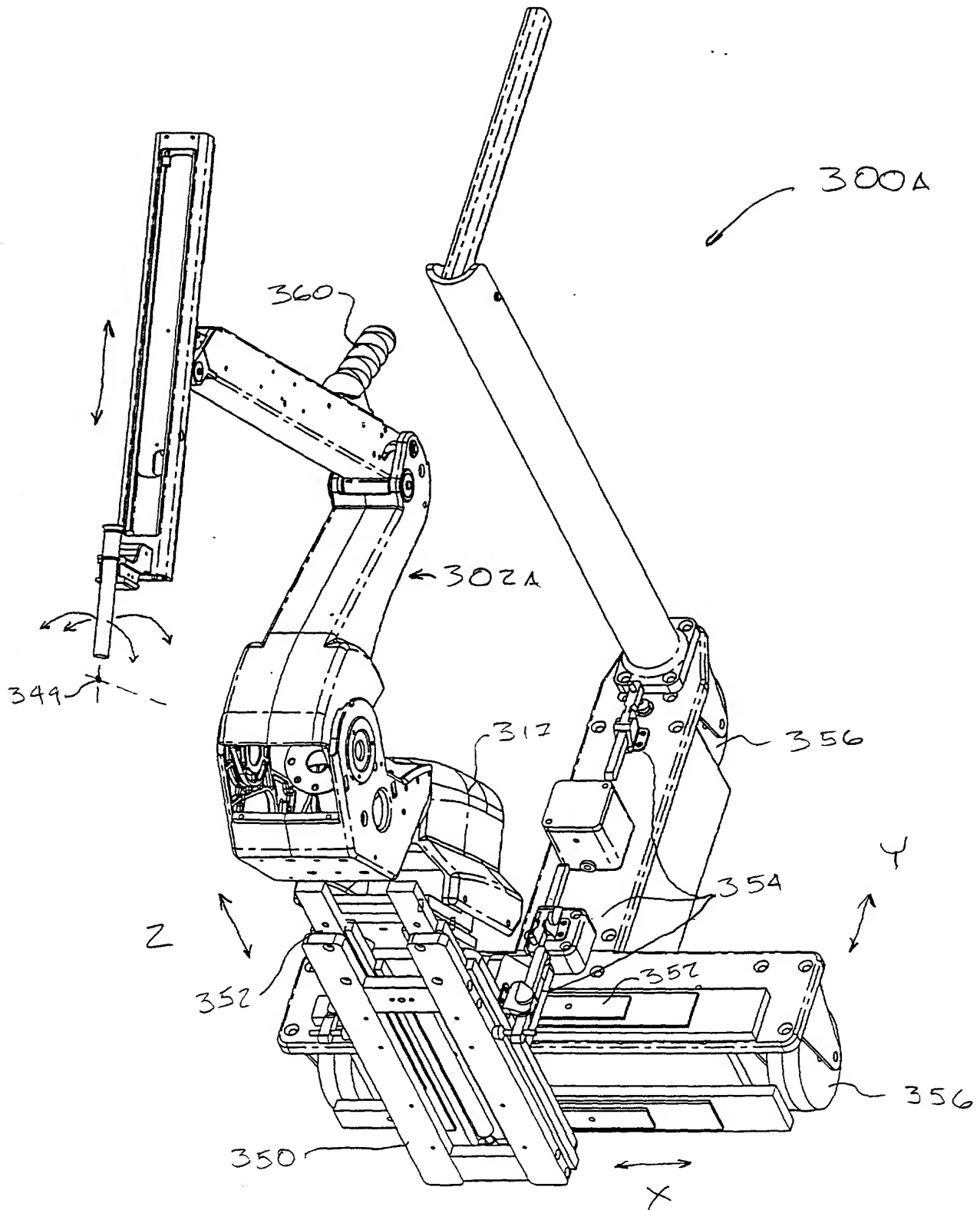
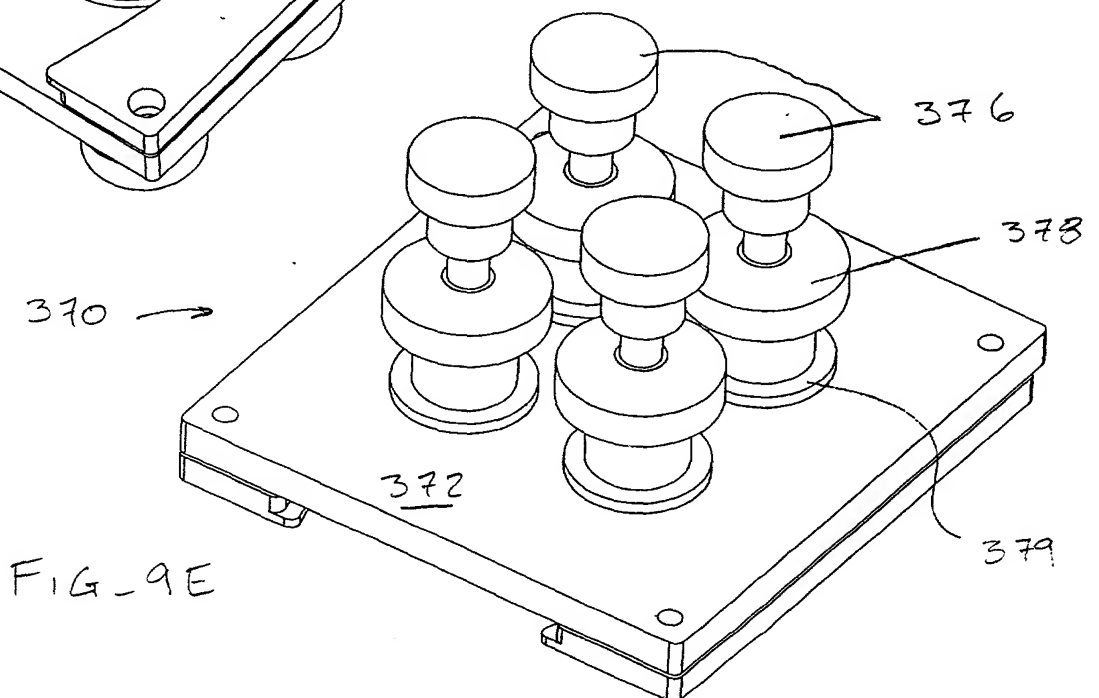
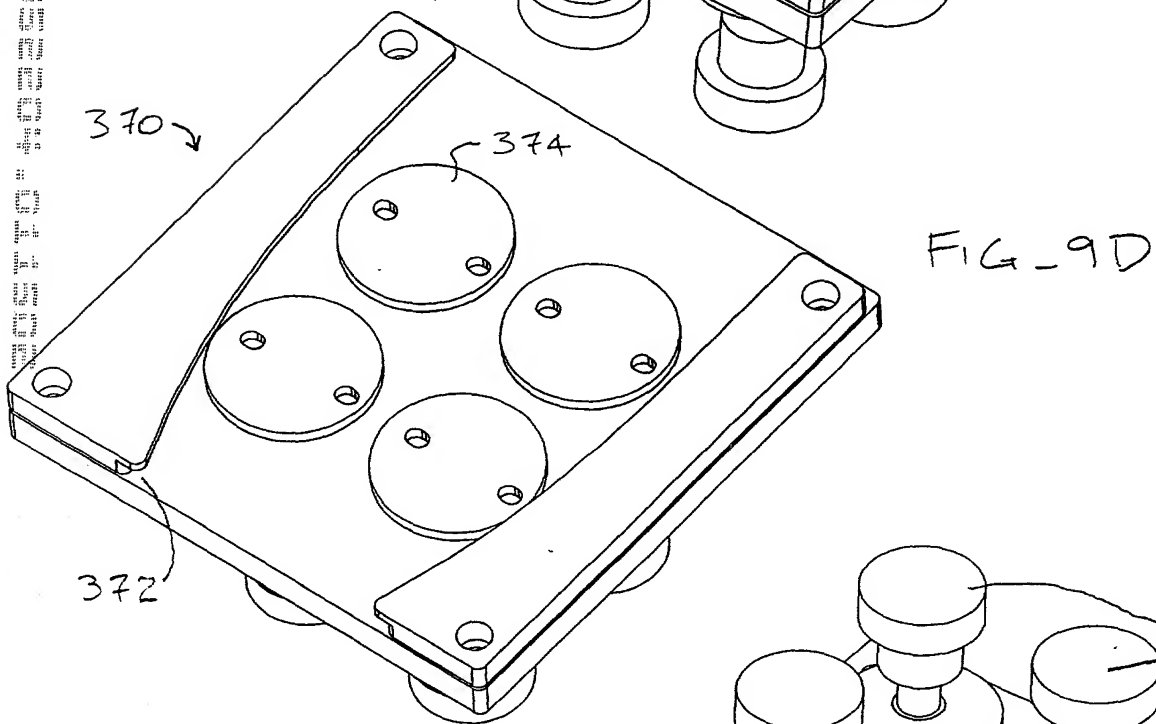
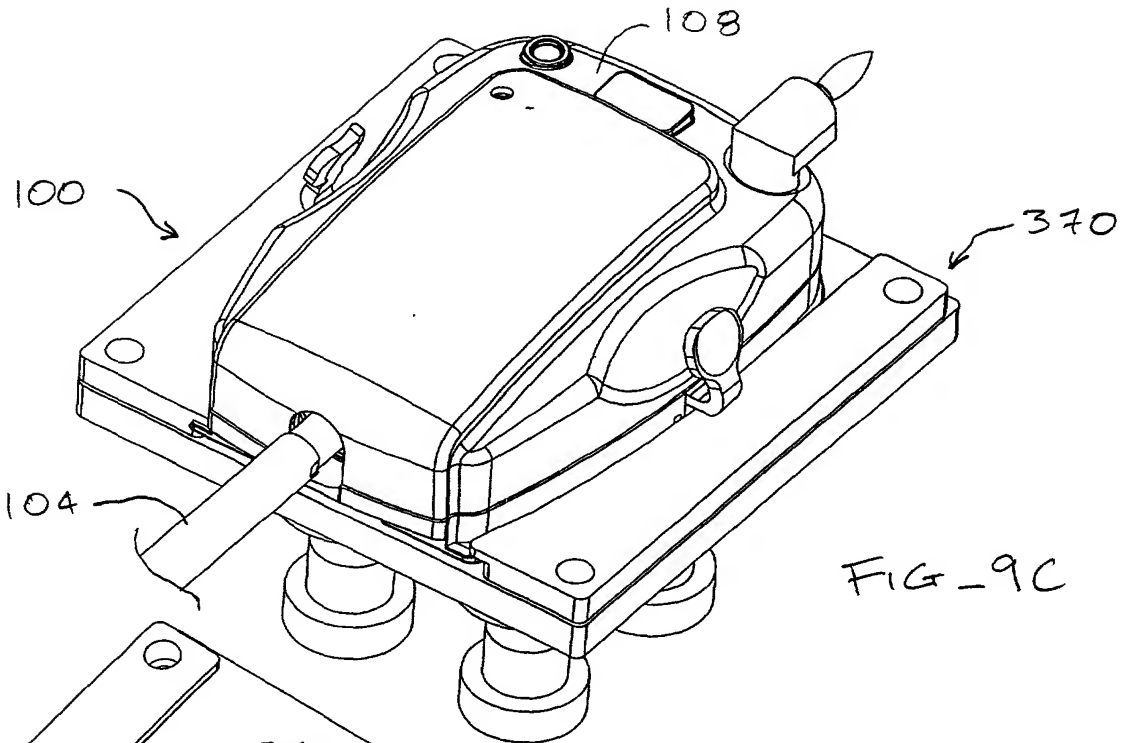


FIG. 9B



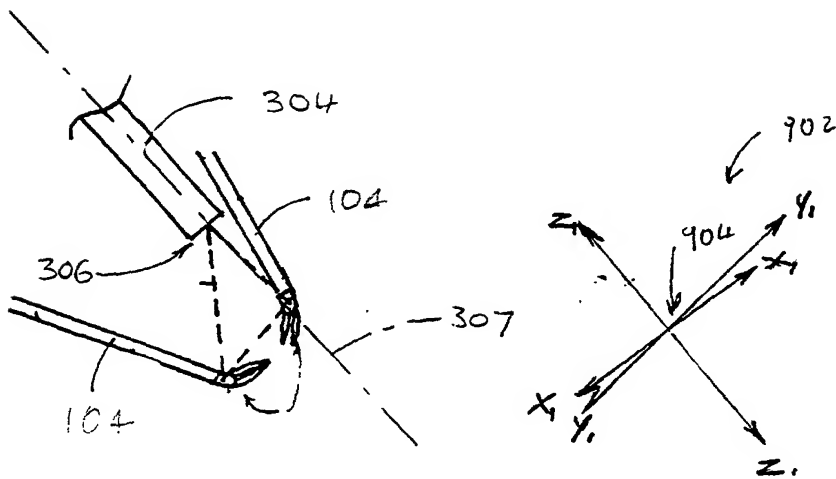
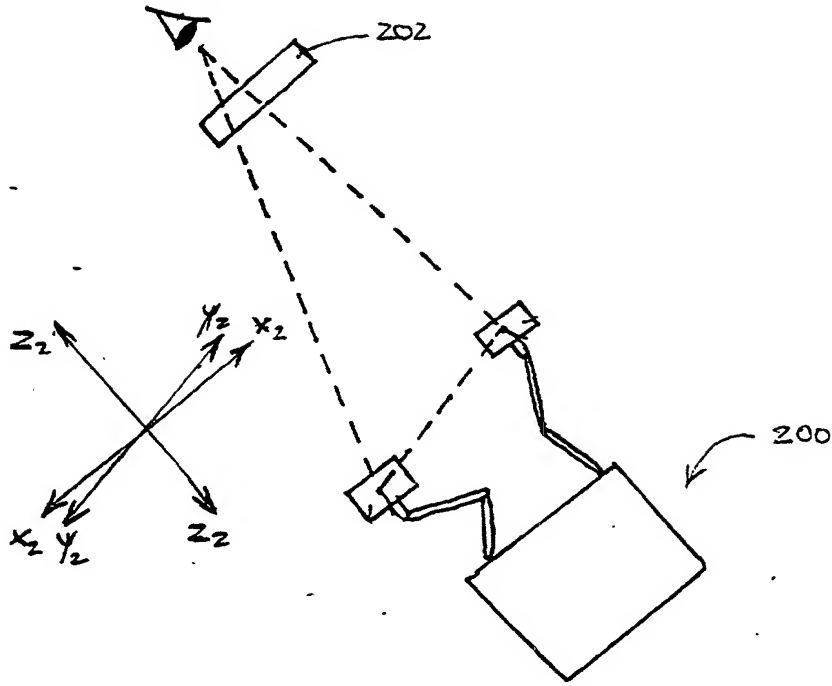


FIG - 10

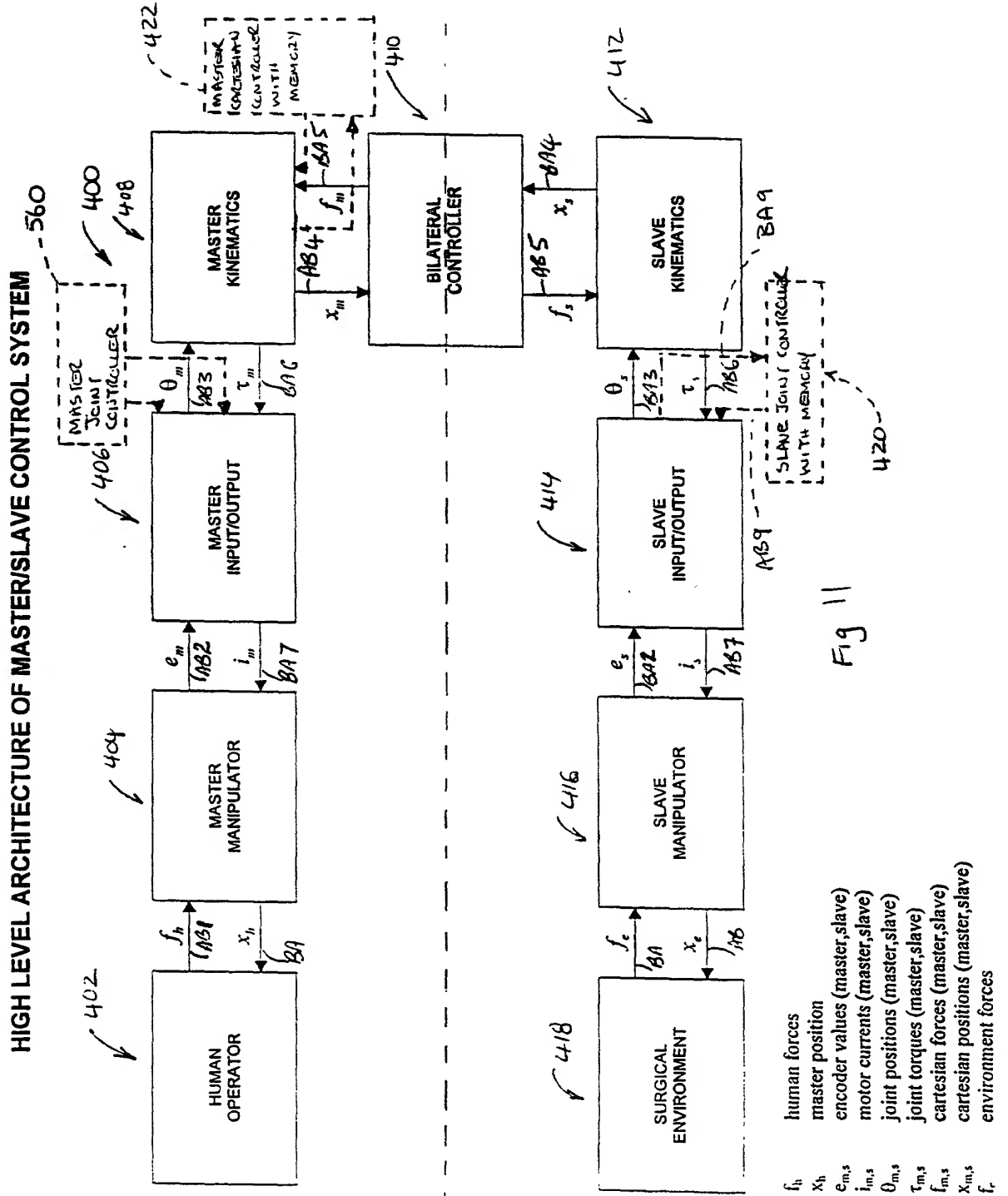


Fig 11



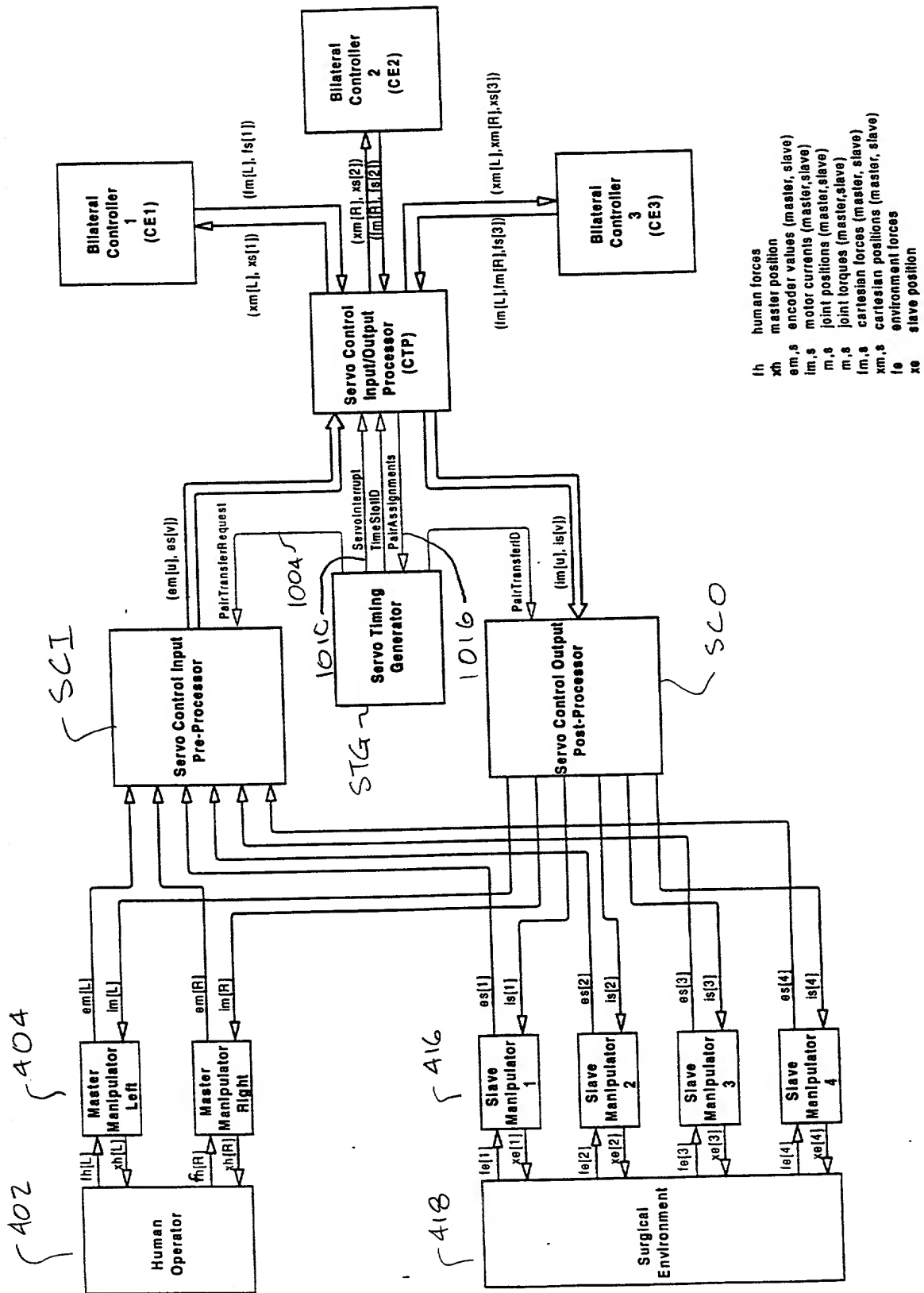
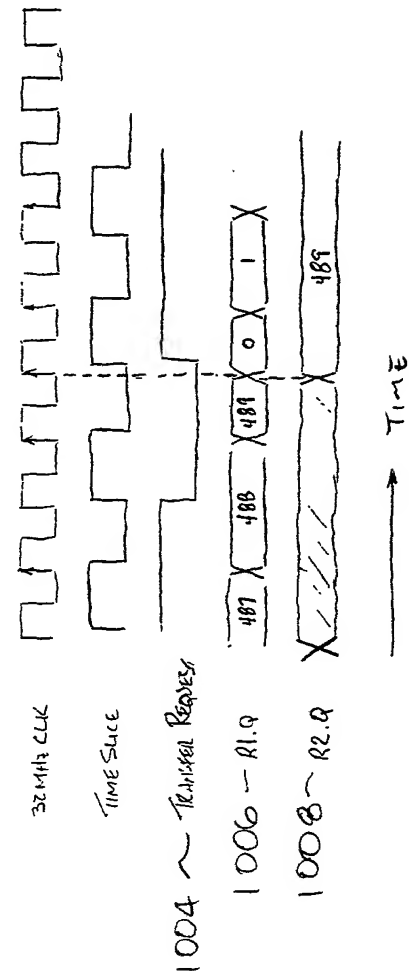
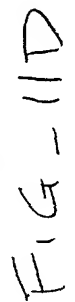


FIG-11A



Fig. 11c





## MASTER RE-POSITIONING

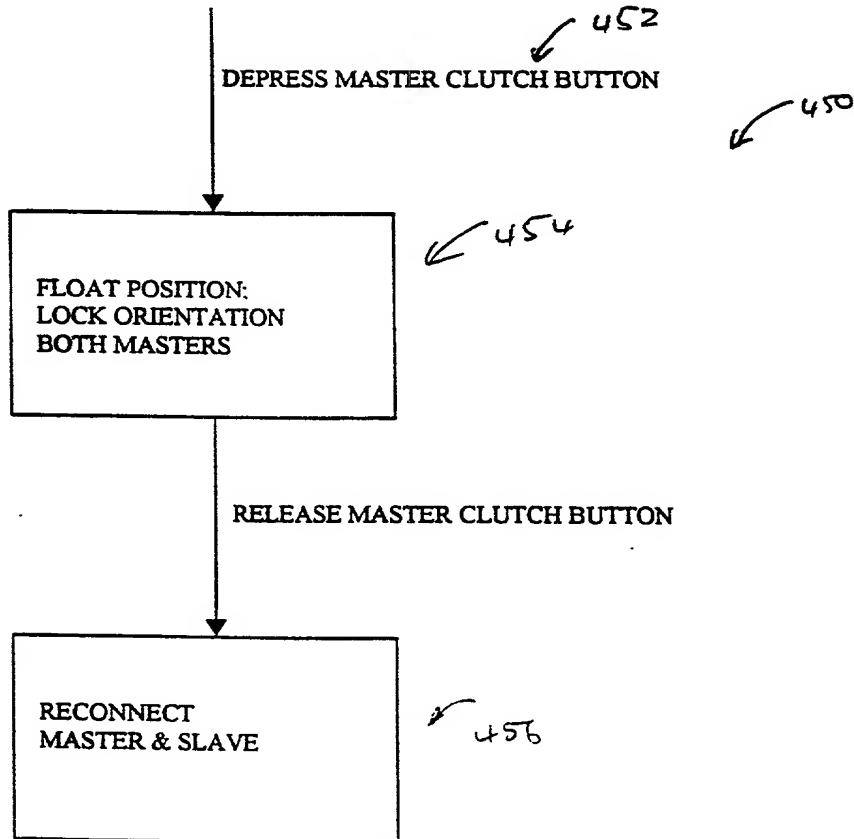


FIG 12

# **MASTER RE-POSITIONING**

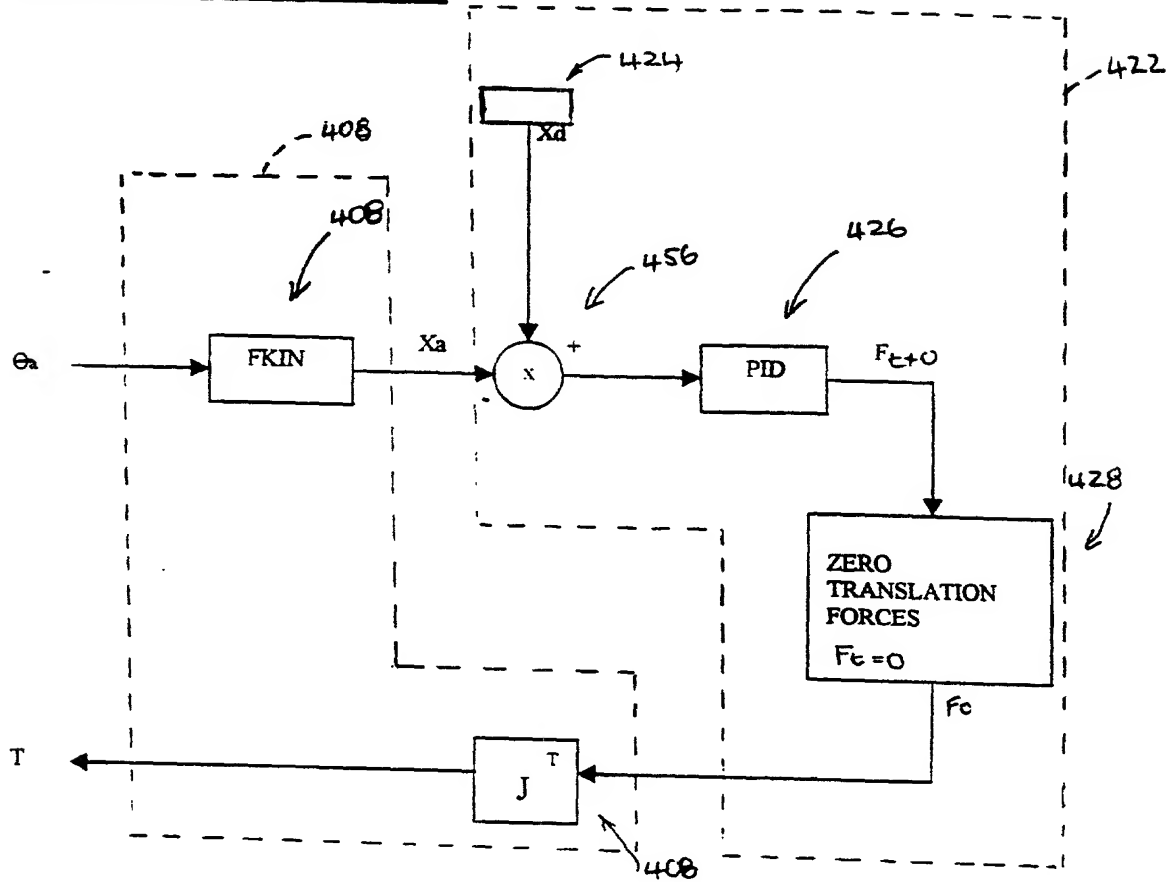


FIG-13

## SLAVE RE-POSITIONING

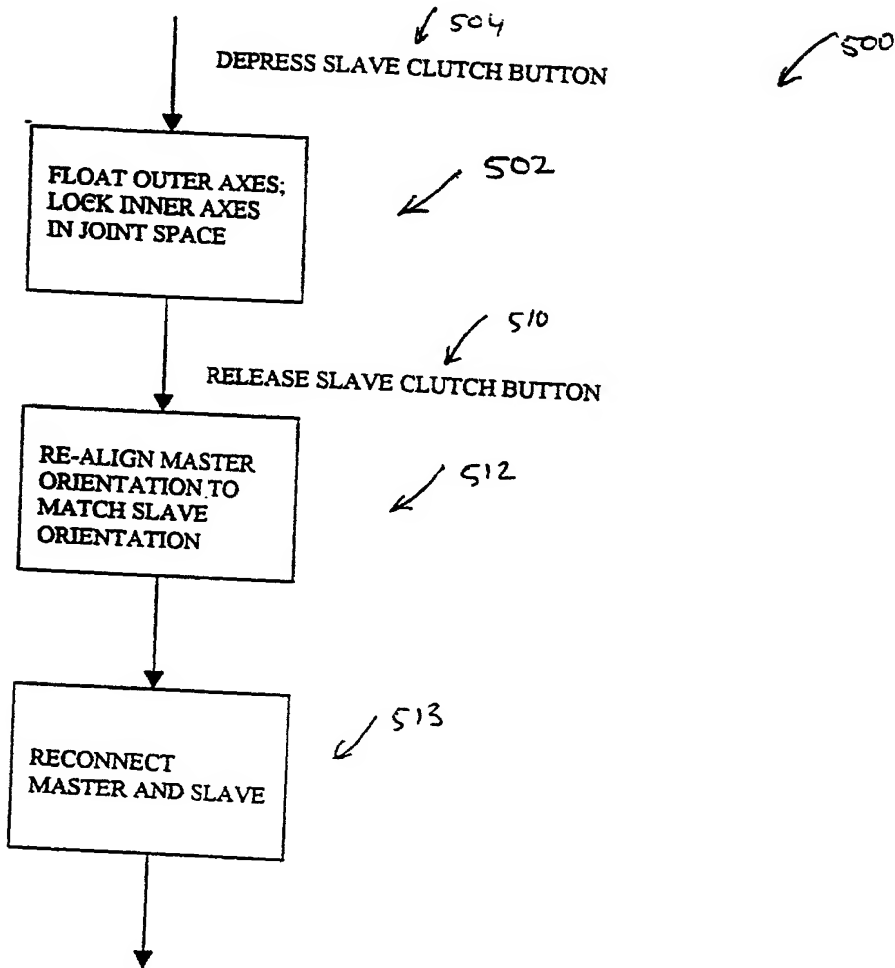


Fig 14

## SLAVE RE-POSITIONING

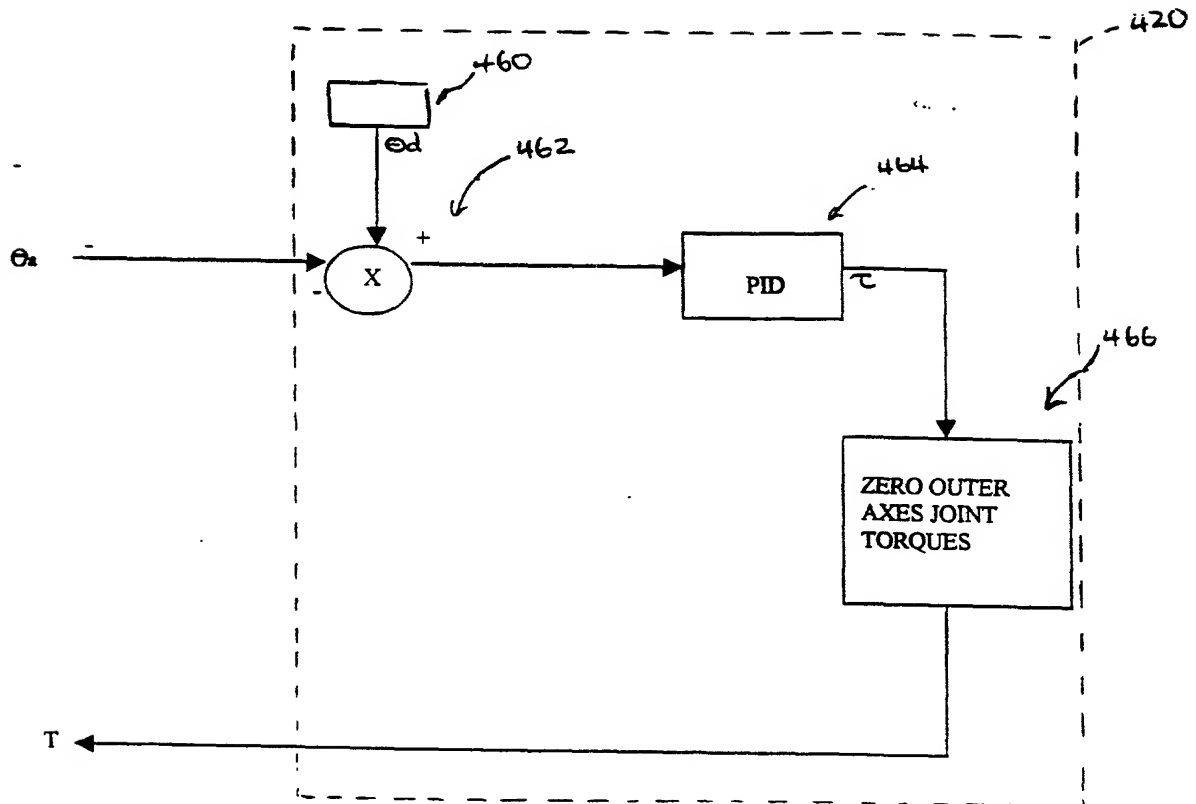


FIG-15

## CAMERA RE-POSITIONING

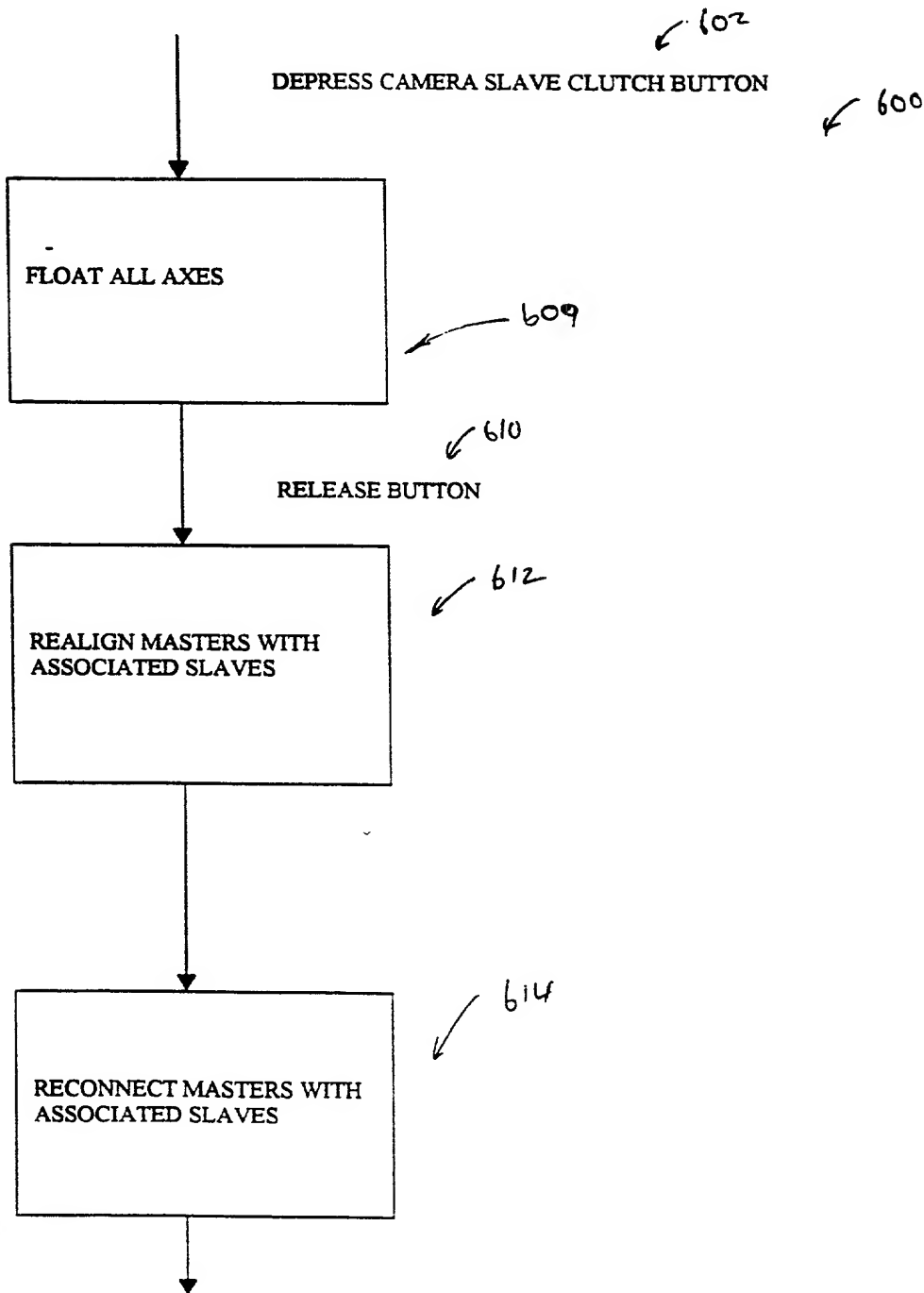


FIG - 16



## CAMERA RE-POSITIONING

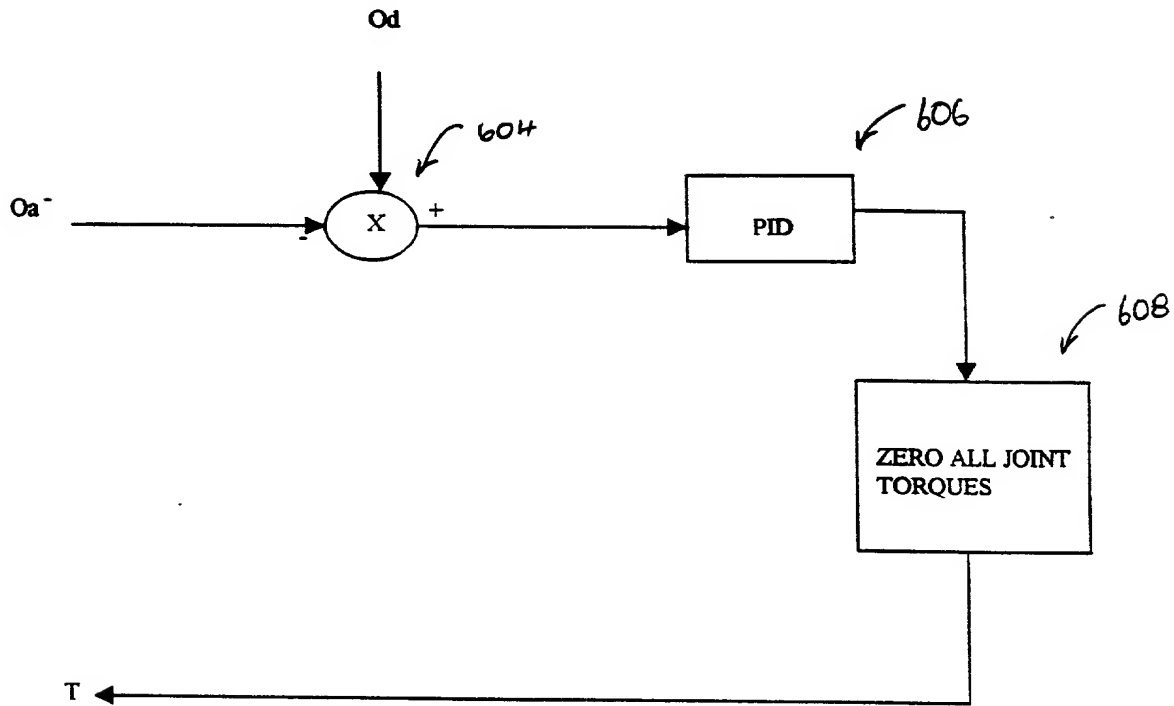


FIG - 17

## **MASTER ALIGNMENT**

(FORCING MASTER ORIENTATION TO EQUAL SLAVE ORIENTATION)

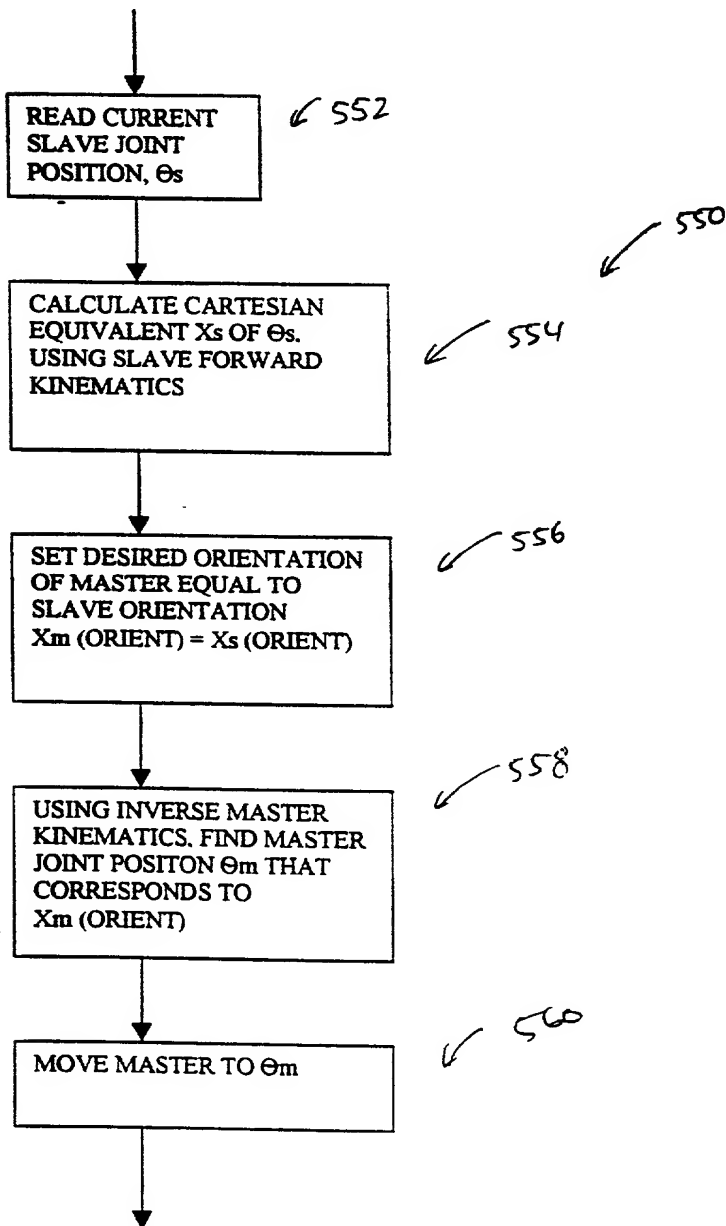


FIG-18

## RE-CONNECTING MASTER AND SLAVE

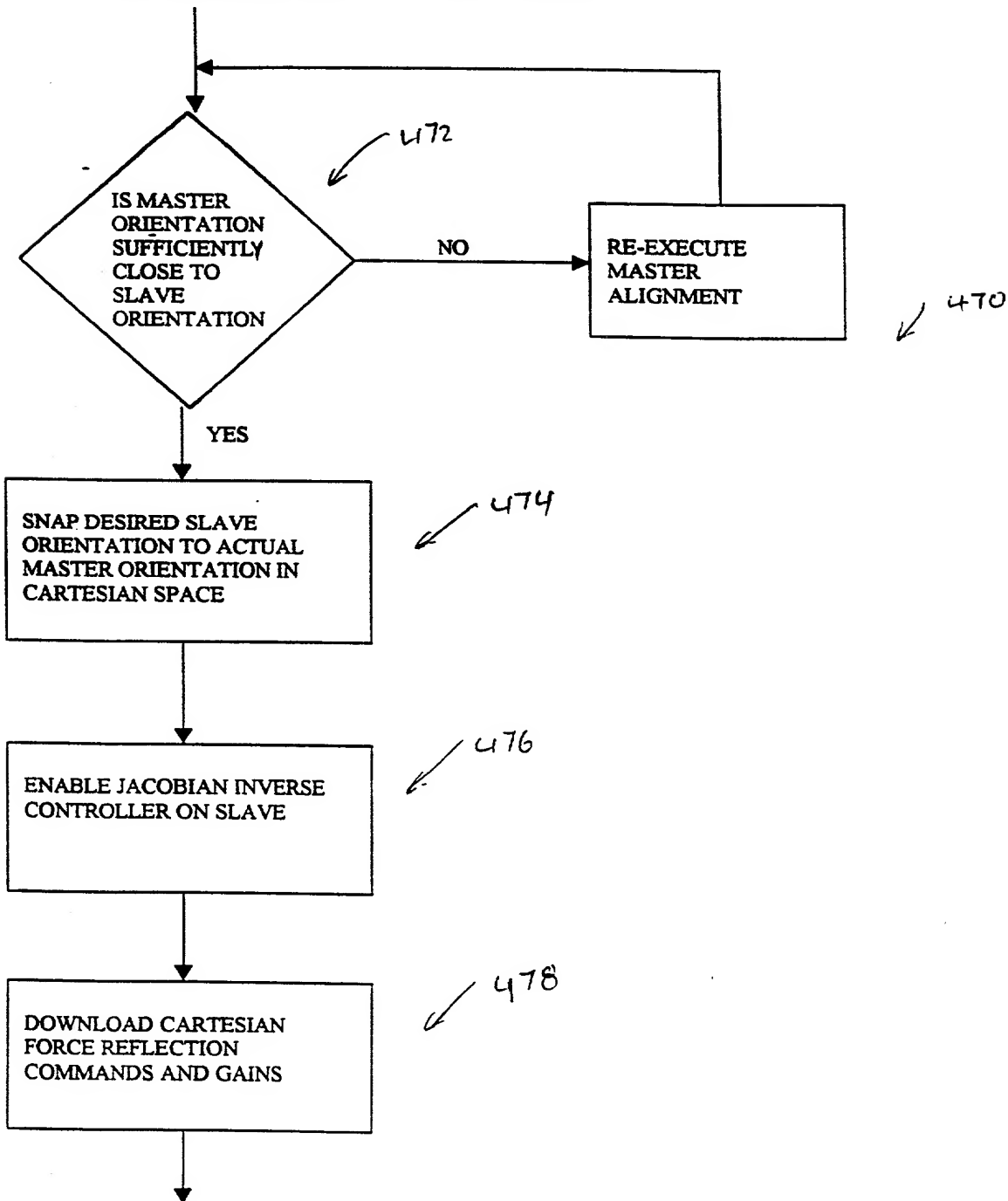


FIG-19

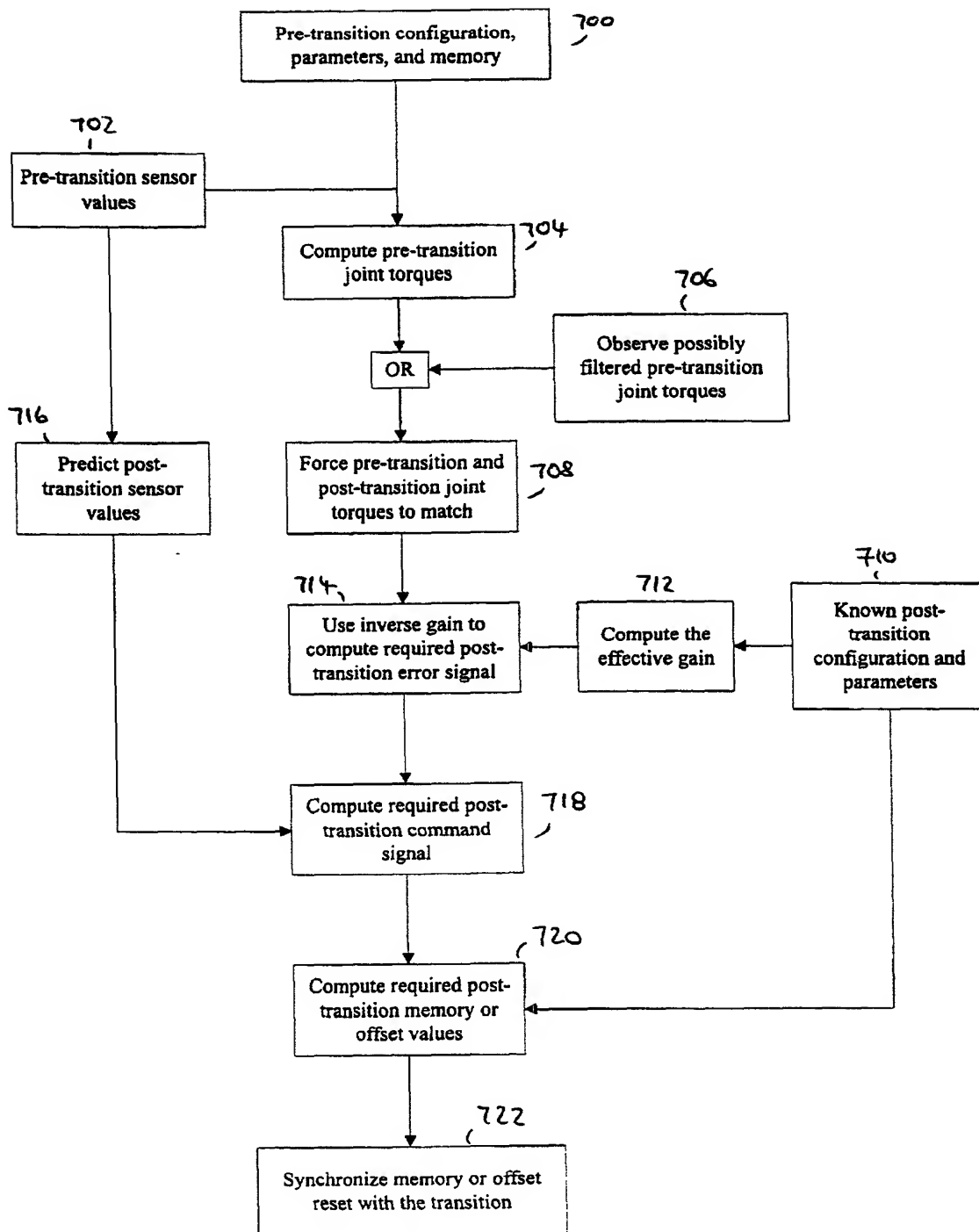


FIG - 19A

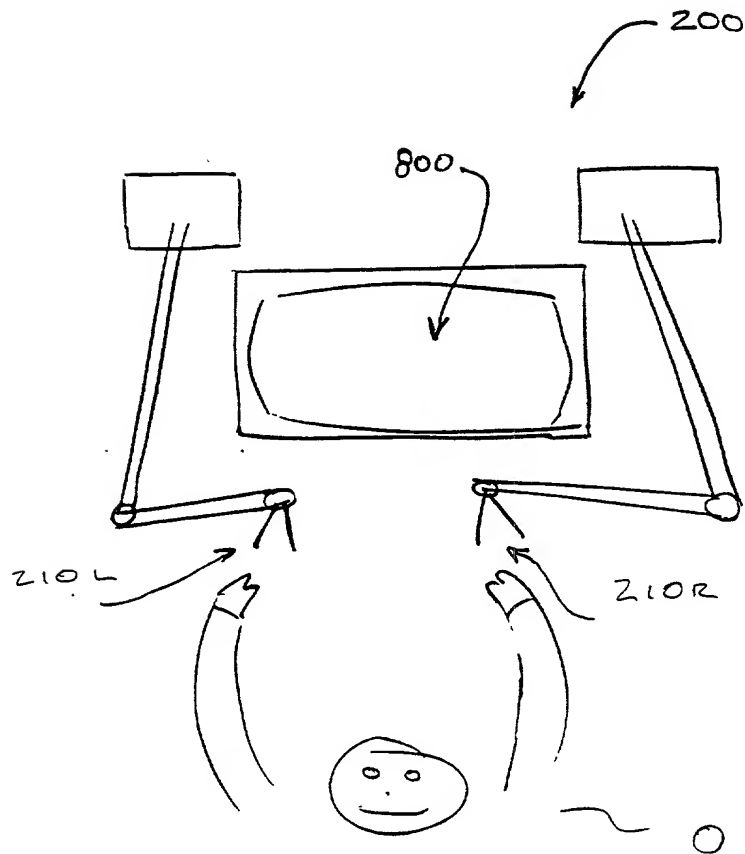
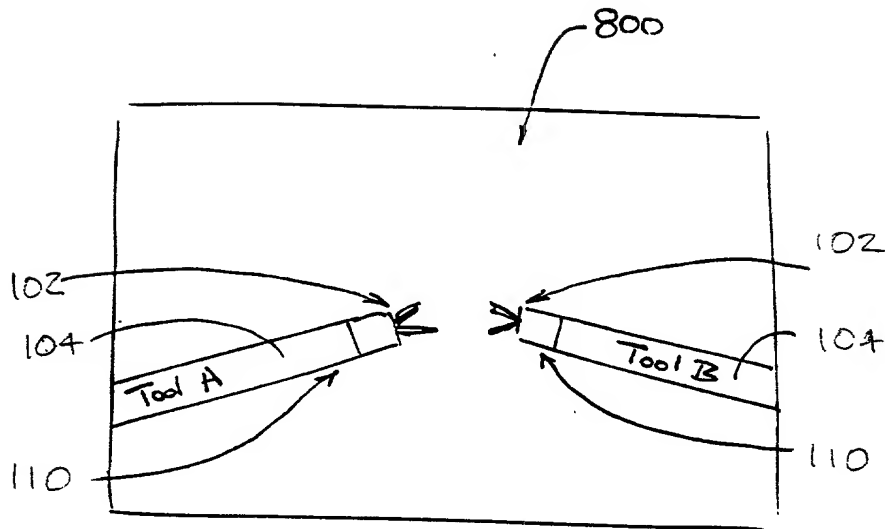
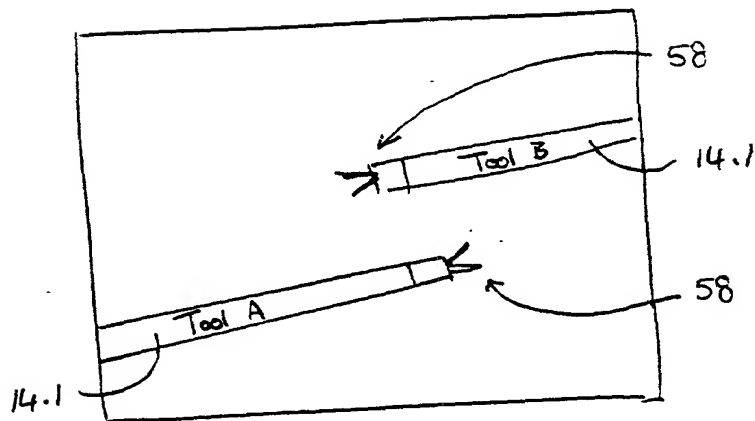


FIG-20



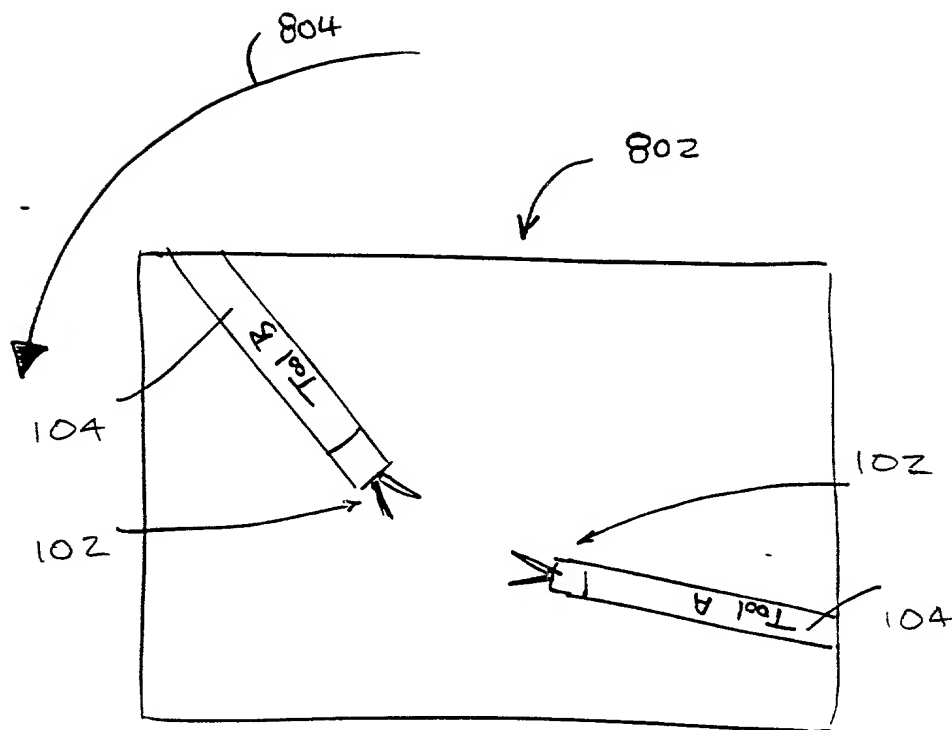
Associate Tool A ↔ Left Master  
Tool B ↔ Right Master

FIG-21



Associate Tool A ↔ Left Master  
Tool B ↔ Right Master

FIG - 21 A



Associate Tool A ↔ Right Master

Tool B ↔ Left Master

FIG-22



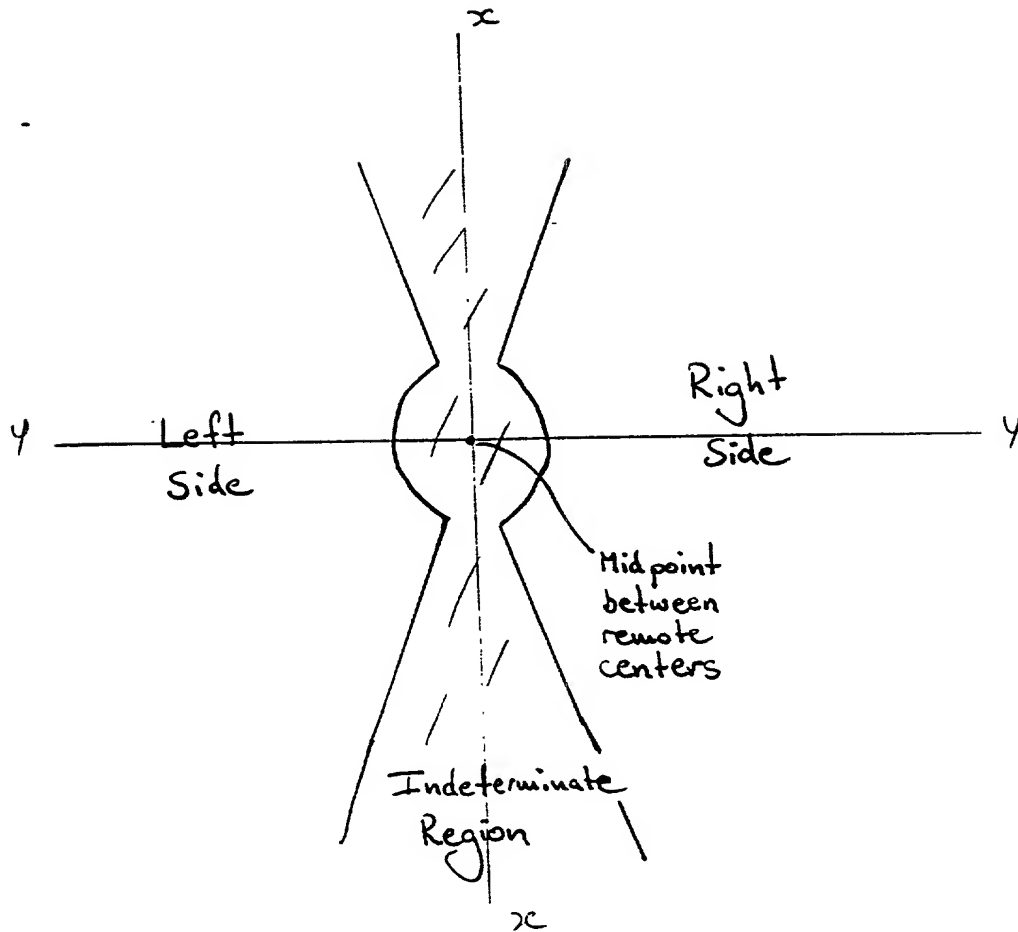
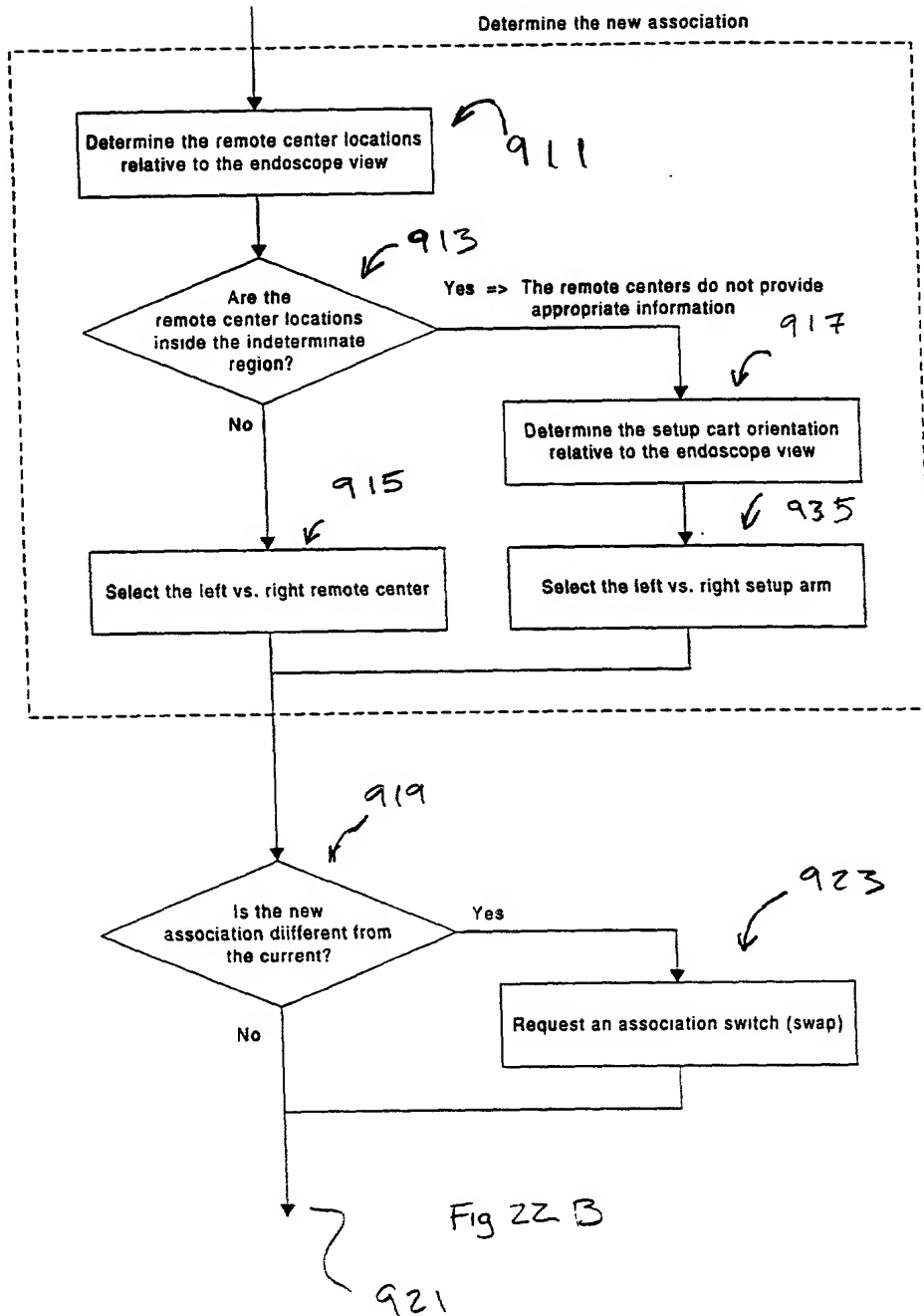


FIG - 22A



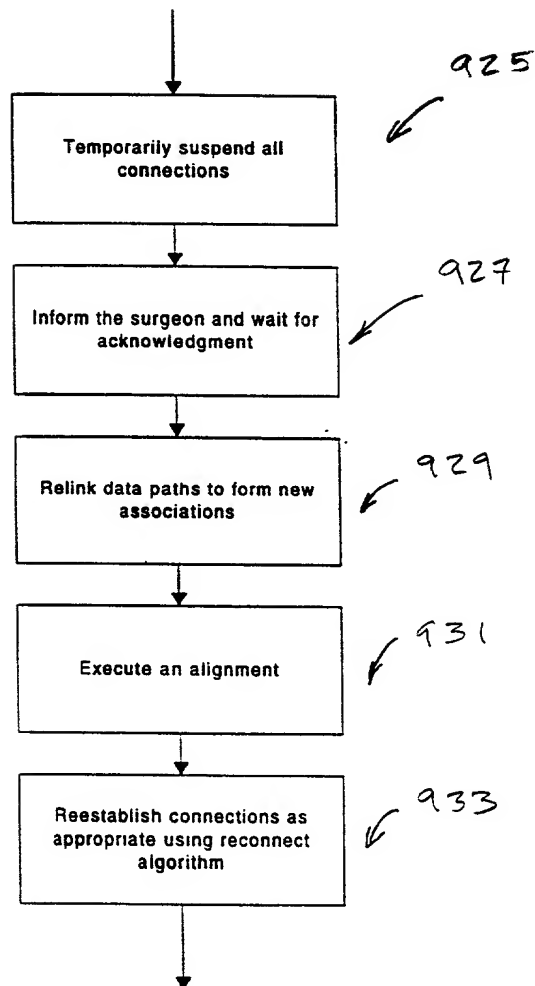


FIG - Z2C

COPY

## DECLARATION

As a below named inventor, I declare that:

My residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **REPOSITIONING AND REORIENTATION OF MASTER/SLAVE RELATIONSHIP IN MINIMALLY INVASIVE TELESURGERY** the specification of which \_\_\_\_ is attached hereto or X was filed on September 17, 1999 as Application No. 09/398,960.

I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56. I claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below:

Application No.	Filing Date
60/116,891	January 22, 1999
60/116,842	January 22, 1999
60/109,359	November 20, 1998

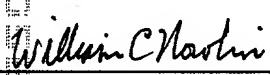
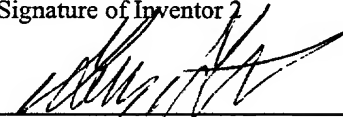


I claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application No.	Date of Filing	Status
09/374,643	August 16, 1999	Pending

Full Name of Inventor 1:	Last Name: <b>NOWLIN</b>	First Name: <b>WILLIAM</b>	Middle Name or Initial: <b>C.</b>
Residence & Citizenship:	City: <b>Los Altos</b>	State/Foreign Country: <b>California</b>	Country of Citizenship: <b>United States</b>
Post Office Address:	Post Office Address: <b>1751 Oak Avenue</b>	City: <b>Los Altos</b>	State/Country: <b>California</b>
			Postal Code: <b>94024</b>
Full Name of Inventor 2:	Last Name: <b>GUTHART</b>	First Name: <b>GARY</b>	Middle Name or Initial: <b>S.</b>
Residence & Citizenship:	City: <b>Foster City</b>	State/Foreign Country: <b>California</b>	Country of Citizenship: <b>United States</b>
Post Office Address:	Post Office Address: <b>732 Chebec Lane</b>	City: <b>Foster City</b>	State/Country: <b>California</b>
			Postal Code: <b>94404</b>

Full Name of Inventor 3:	Last Name: <b>SALISBURY, Jr.</b>	First Name: <b>J.</b>	Middle Name or Initial: <b>KENNETH</b>	
Residence & Citizenship:	City: <b>Atherton</b>	State/Foreign Country: <b>California</b>	Country of Citizenship: <b>United States</b>	
Post Office Address:	Post Office Address: <b>71 Manzanita Road</b>	City: <b>Atherton</b>	State/Country: <b>California</b>	Postal Code: <b>94027</b>
Full Name of Inventor 4:	Last Name: <b>NIEMEYER</b>	First Name: <b>GUNTER</b>	Middle Name or Initial: <b>D.</b>	
Residence & Citizenship:	City: <b>Mountain View</b>	State/Foreign Country: <b>California</b>	Country of Citizenship: <b>Germany</b>	
Post Office Address:	Post Office Address: <b>111 N. Rengstorff Ave., #135</b>	City: <b>Mountain View</b>	State/Country: <b>California</b>	Postal Code: <b>94043</b>

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor 1  <b>WILLIAM C. NOWLIN</b> Date <b>Nov 6, 1999</b>	Signature of Inventor 2  <b>GARY S. GUTHART</b> Date <b>11/9/99</b>	Signature of Inventor 3  <b>J. KENNETH SALISBURY, Jr.</b> Date <b>11/13/99</b>
Signature of Inventor 4  <b>GUNTER D. NIEMEYER</b> Date <b>11/9/99</b>		

COPY

Attorney Docket No.: 17516-001310

**POWER OF ATTORNEY BY ASSIGNEE**

**Intuitive Surgical, Inc.**, located at 1340 West Middlefield Road, Mountain View, California 94043, is the Assignee of the invention entitled:

**REPOSITIONING AND REORIENTATION OF MASTER/SLAVE RELATIONSHIP IN MINIMALLY INVASIVE TELESURGERY**

The specification of which \_\_\_\_\_ is attached hereto or X was filed on September 17, 1999 as Application No. 09/398,960.

The Assignment accompanying this Power of Attorney has been reviewed by the undersigned. The undersigned certifies that to the best of the undersigned's knowledge and belief, title is in the Assignee. The undersigned (whose title is supplied below) is empowered to act on behalf of the Assignee.

Assignee hereby appoints the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

James M. Heslin, Reg. No. 29,541  
Gary T. Aka, Reg. No. 29,038  
Robert C. Colwell, Reg. No. 27,431  
Paul C. Haughey, Reg. No. 31,836  
David N. Slone, Reg. No. 28,572  
William M. Smith, Reg. No. 30,223  
Karen B. Dow, Reg. No. 29,684  
Margaret A. Powers, Reg. No. 39,804

Darin J. Gibby, Reg. No. 38,464  
Mark D. Barrish, Reg. No. 36,443  
Joe Liebeschuetz, Reg. No. 37,505  
James F. Hann, Reg. No. 29,719  
Randolph T. Apple, Reg. No. 36,429  
John R. Storella, Reg. No. 32,944  
David R. Heckadon (Granted Limited Recognition under 37 CFR § 10.9(b))

Send Correspondence to:

**Mark D. Barrish, Esq.**

TOWNSEND and TOWNSEND and CREW LLP  
Two Embarcadero Center, 8th Floor  
San Francisco, CA 94111-3834

Direct Telephone Calls to:

**Mark D. Barrish**

**Reg. No. 36,443**

(650) 326-2400

Date: \_\_\_\_\_

11/11/99

By: \_\_\_\_\_

**Intuitive Surgical, Inc.**



David Shaw

Title: Chief Patent Counsel

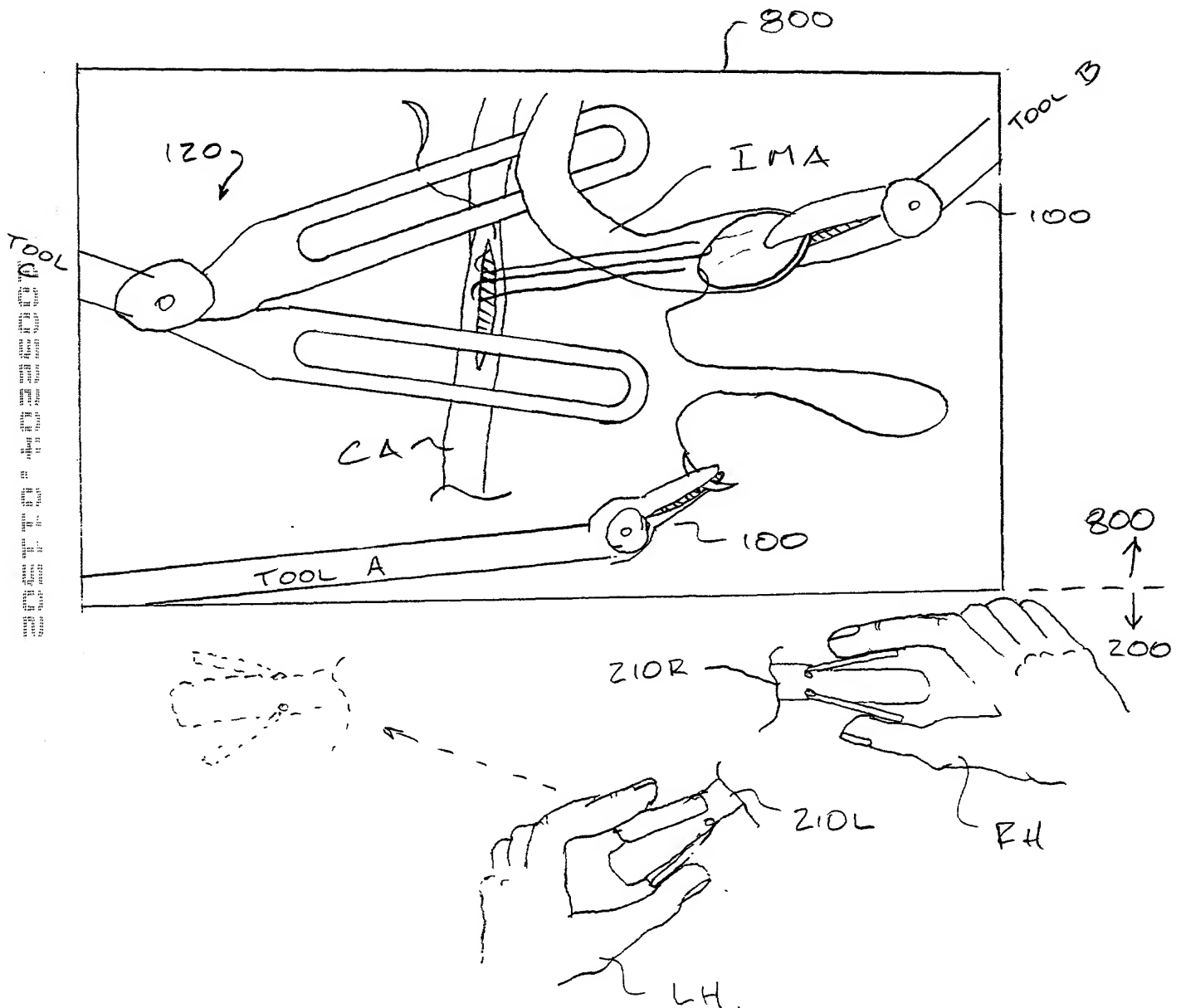
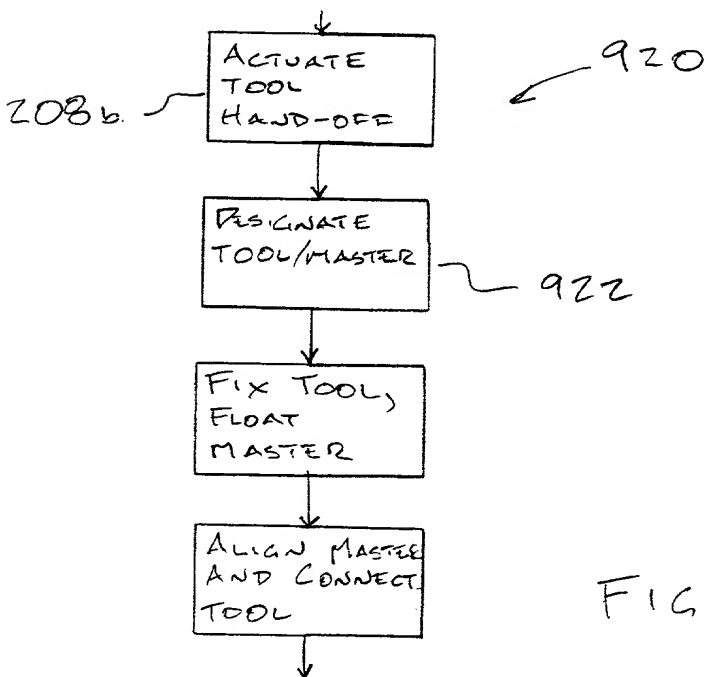
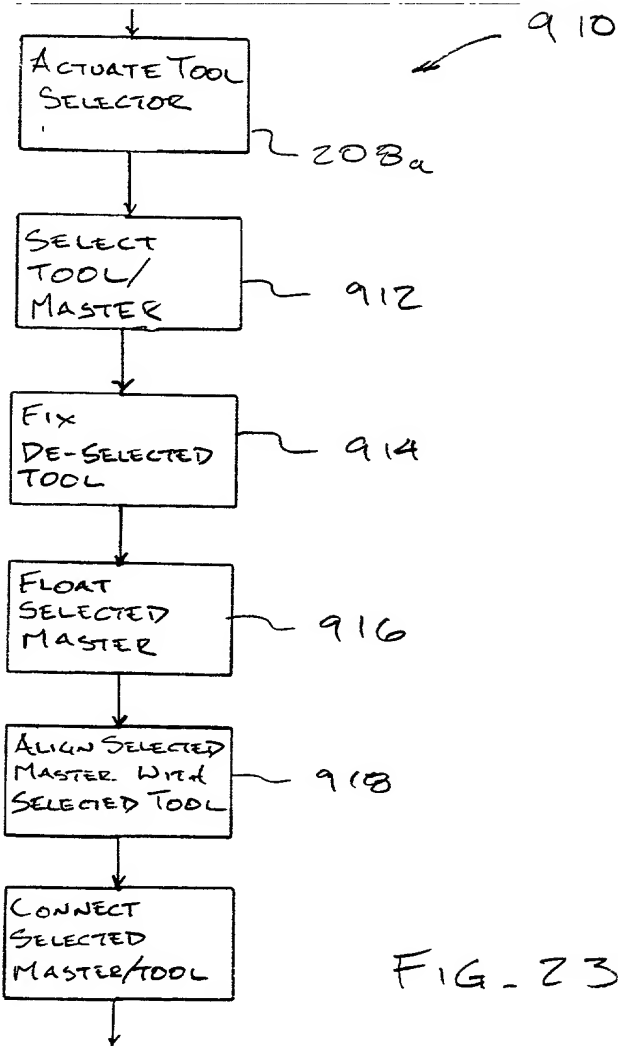


FIG-23A





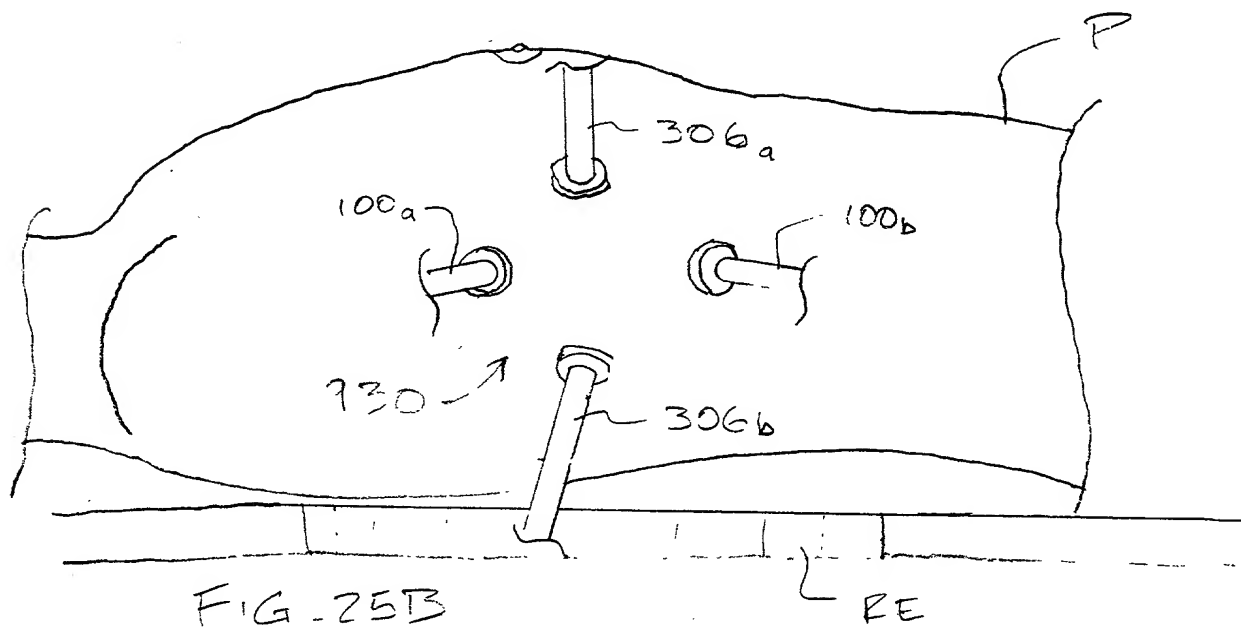
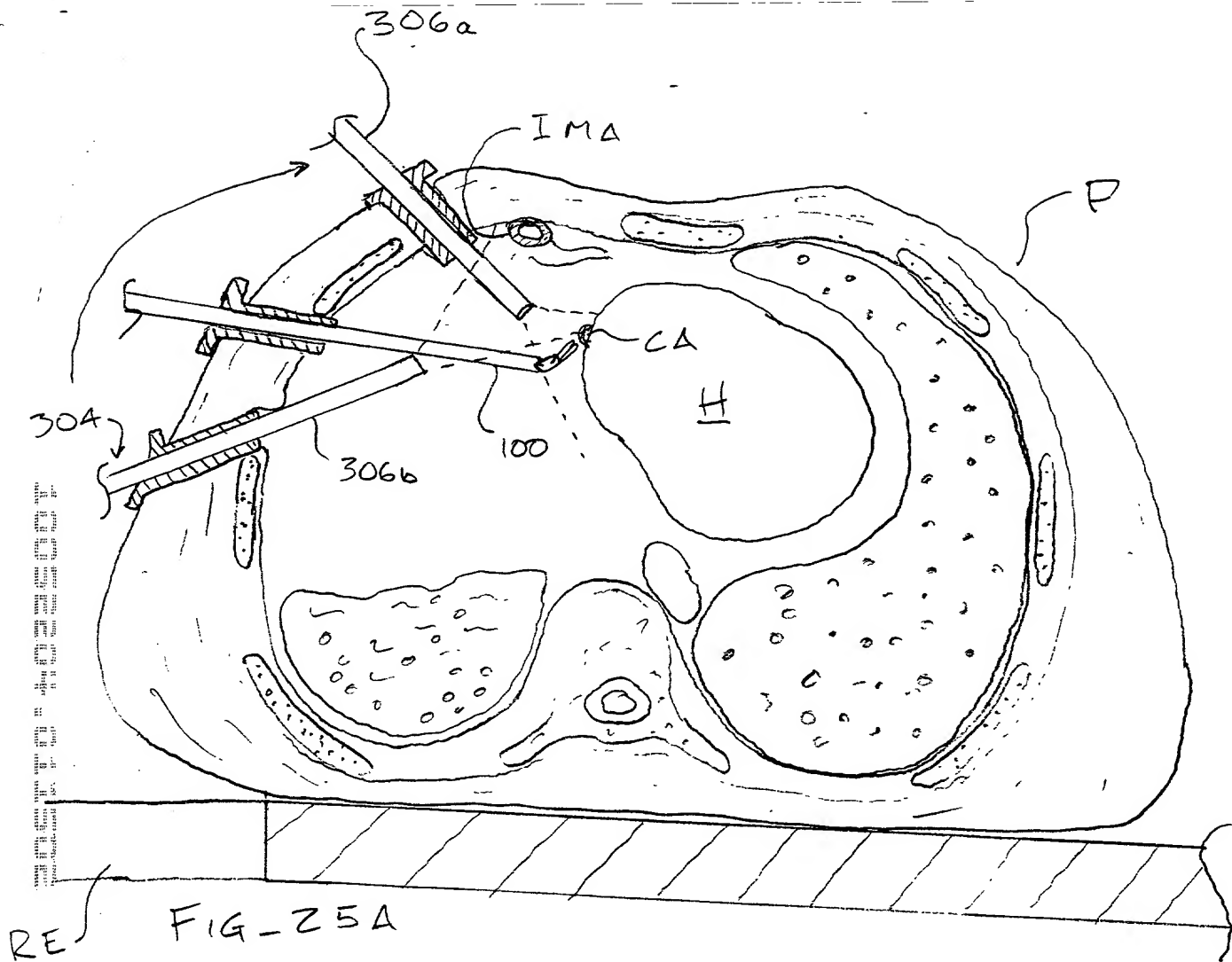


FIG. 26

